Ycc

FIG. 1

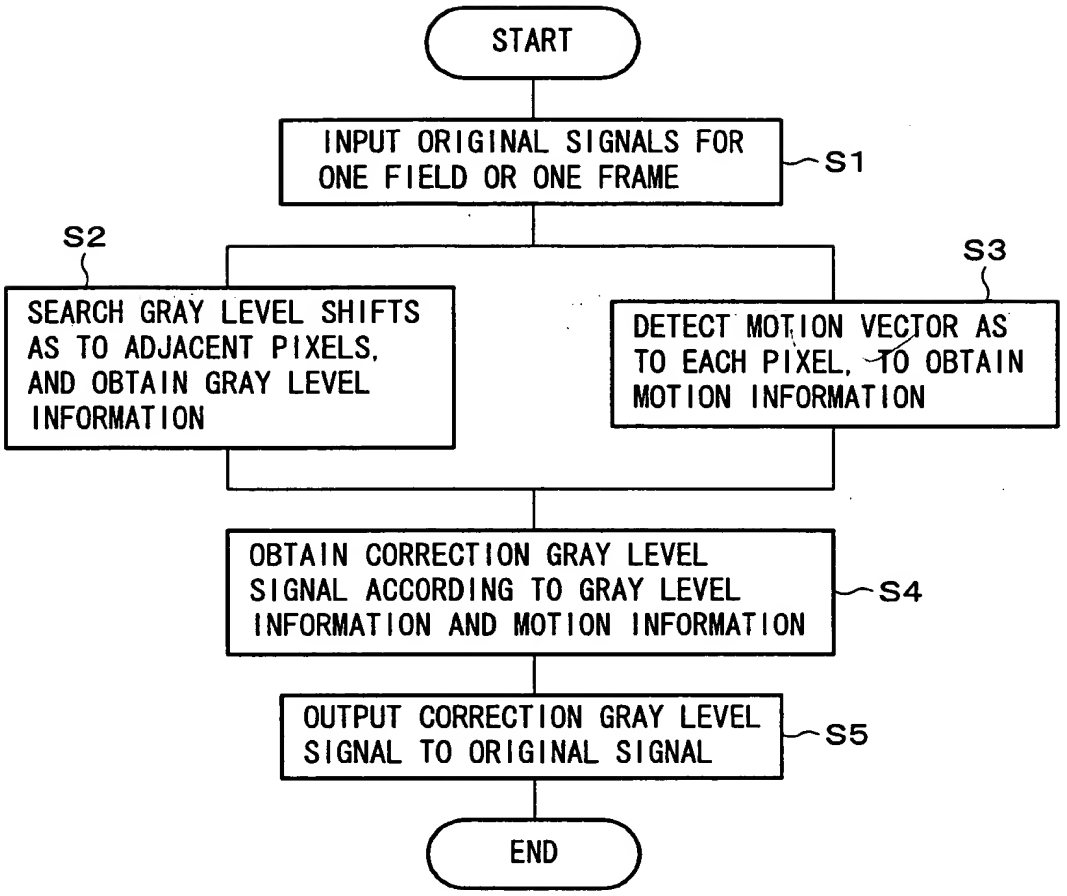


FIG. 2 (a)

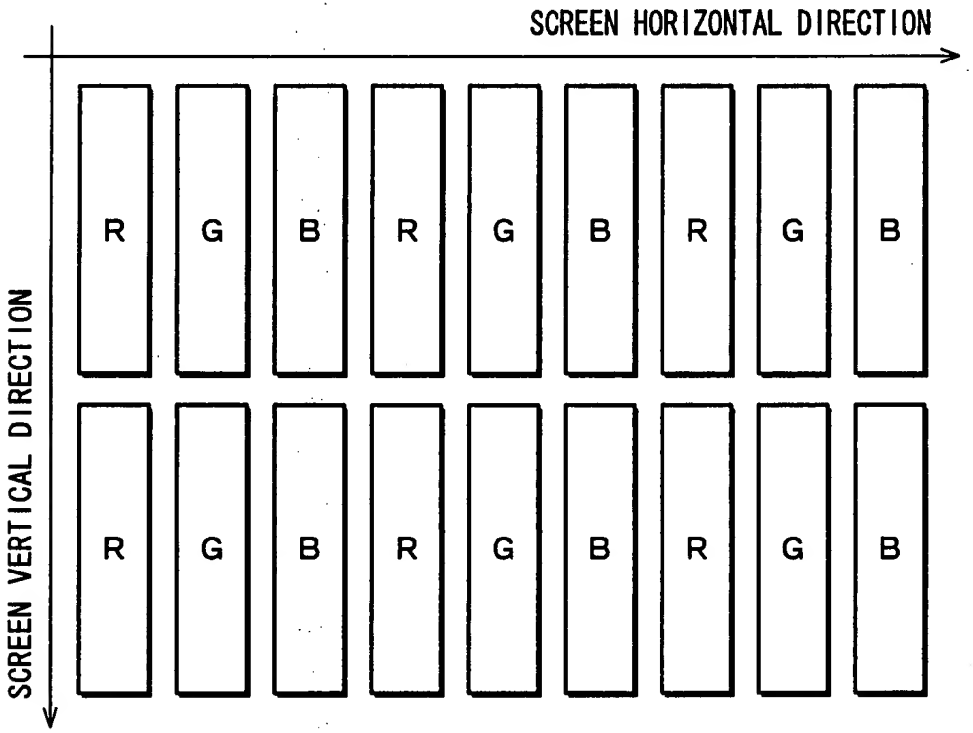

SCREEN HORIZONTAL DIRECTION
SCREEN VERTICAL DIRECTION
R
G
B
R
G
B
R
G
B
R
G
B
R
G
B
R
G
B
R
G
B
R
G
B

FIG. 2 (b)

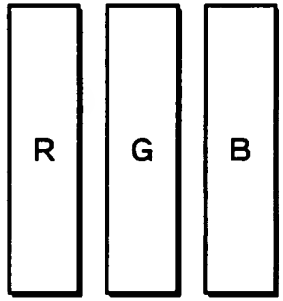

R
G
B

FIG. 3 (a)

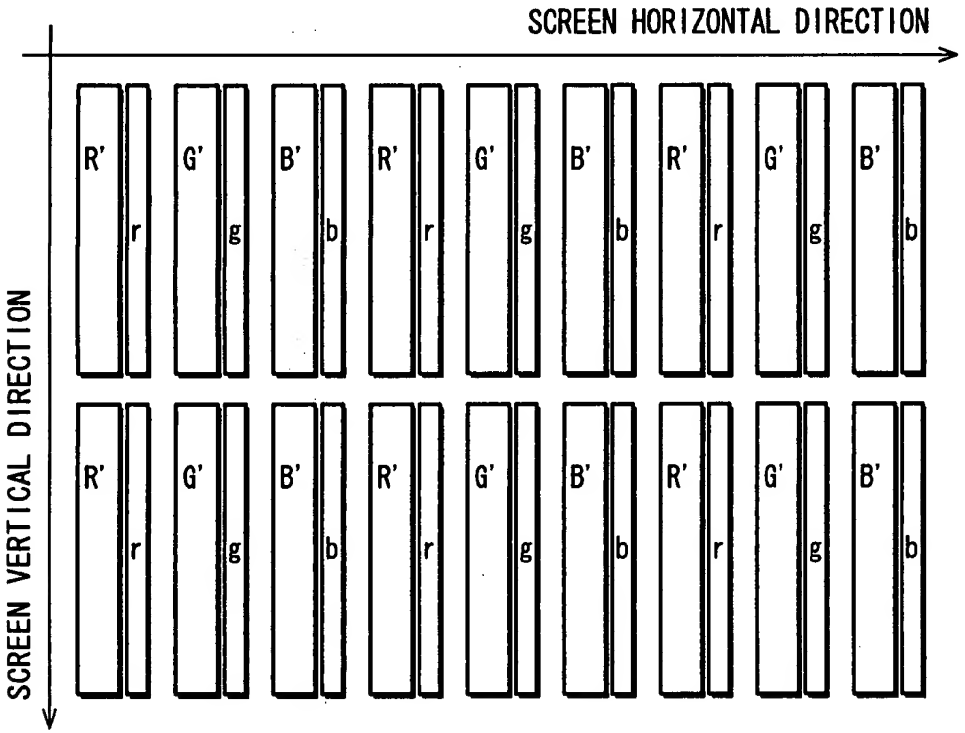

SCREEN HORIZONTAL DIRECTION
SCREEN VERTICAL DIRECTION
R'
r
G'
g
B'
b

FIG. 3 (b)

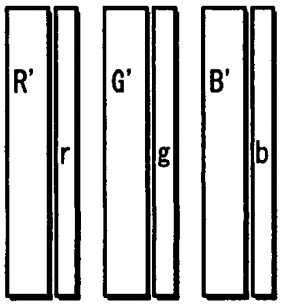
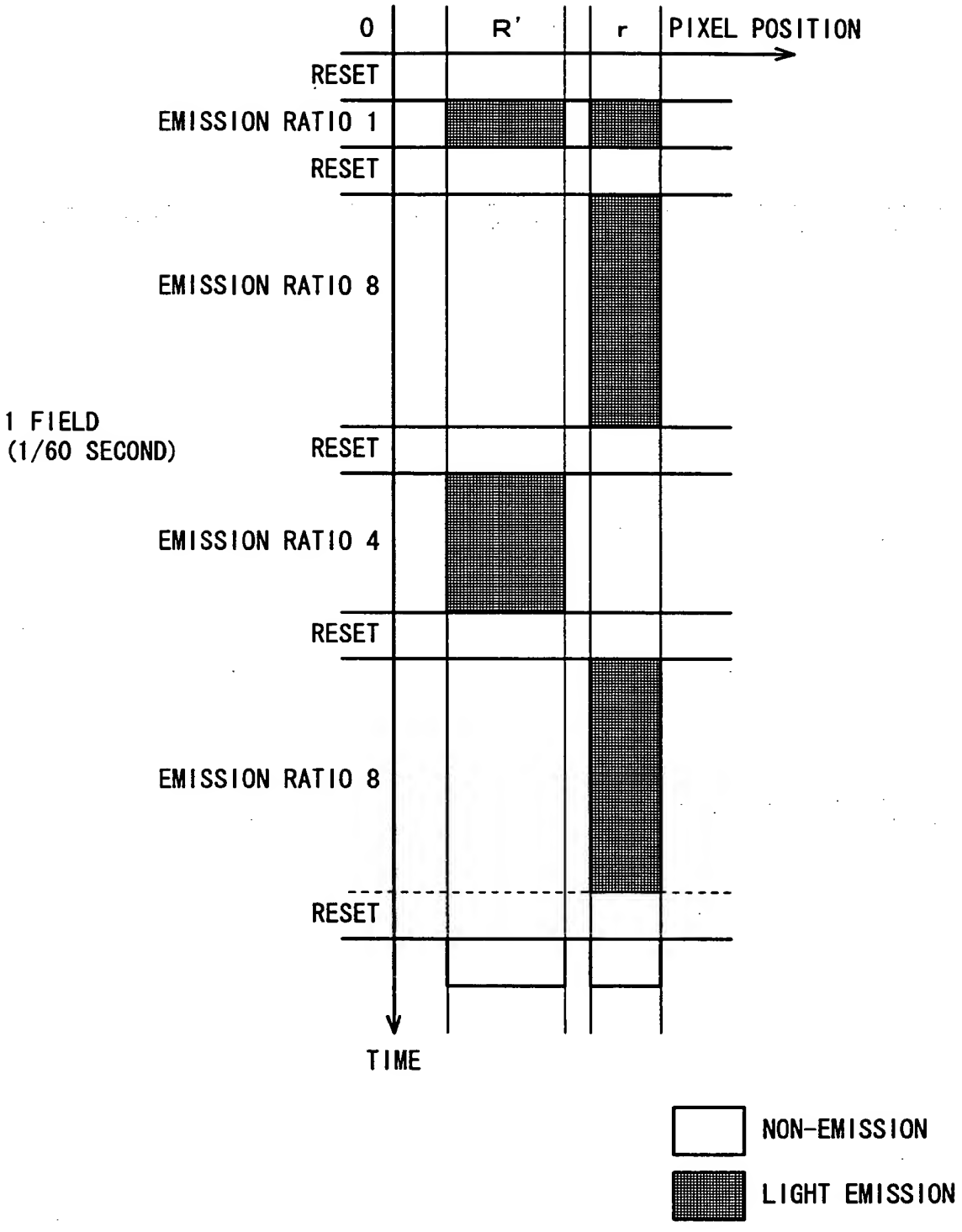

R'
r
G'
g
B'
b
1 PIXEL

FIG. 4


0
R'
r
PIXEL POSITION
RESET
EMISSION RATIO 1
RESET
EMISSION RATIO 8
1 FIELD
(1/60 SECOND)
RESET
EMISSION RATIO 4
RESET
EMISSION RATIO 8
RESET
TIME
NON-EMISSION
LIGHT EMISSION

# FIG. 5

FIRST REDUNDANCY SIGNAL PATTERN 1

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 1 | | 8 | | 4 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 1 | 2 | 8 | 16 | 4 | 8 | 8 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 7 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 9 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 10 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 11 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 13 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 14 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 15 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 16 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 17 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 18 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 19 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 20 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 21 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 22 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 23 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 24 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 25 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 26 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 27 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 28 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| 29 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| 30 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 31 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 1 | | 8 | | 4 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 1 | 2 | 8 | 16 | 4 | 8 | 8 | 16 |
| 32 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 33 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 34 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 35 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 36 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 37 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 38 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 39 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 40 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 41 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 42 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 43 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 44 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |
| 45 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |
| 46 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 47 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 48 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| 49 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| 50 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 51 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 52 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| 53 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| 54 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 55 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 56 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 57 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 58 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 59 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 60 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 61 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 62 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

# FIG. 6

FIRST REDUNDANCY SIGNAL PATTERN 2

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 1 | | 8 | | 4 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 1 | 2 | 8 | 16 | 4 | 8 | 8 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 7 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 9 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 11 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 13 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 14 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 15 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 16 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 17 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 18 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 19 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 20 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 21 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 22 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 23 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 24 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 25 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 26 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 27 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 28 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 29 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 30 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| 31 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 1 | | 8 | | 4 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 1 | 2 | 8 | 16 | 4 | 8 | 8 | 16 |
| 32 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 33 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 34 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| 35 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| 36 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 37 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 38 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
| 39 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
| 40 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 41 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 42 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 43 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 44 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| 45 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| 46 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 47 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 48 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| 49 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| 50 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 51 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 52 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| 53 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| 54 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 55 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 56 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 57 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 58 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 59 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 60 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 61 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 62 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

# FIG. 7

FIRST REDUNDANCY SIGNAL PATTERN 3

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 1 | | 8 | | 4 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 1 | 2 | 8 | 16 | 4 | 8 | 8 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 7 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 9 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 10 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 11 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 12 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 13 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 14 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 15 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 17 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 18 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 19 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 20 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 21 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 22 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 23 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 24 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 25 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 26 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 27 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 28 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 29 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 30 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 31 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 1 | | 8 | | 4 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 1 | 2 | 8 | 16 | 4 | 8 | 8 | 16 |
| 32 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 33 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 34 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 35 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 36 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 37 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 38 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 39 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 40 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 41 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 42 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 43 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 44 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 45 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 46 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 47 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 48 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 49 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 50 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 51 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 52 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 53 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 54 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 55 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 56 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 57 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 58 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 59 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 60 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 61 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 62 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

FIG. 8

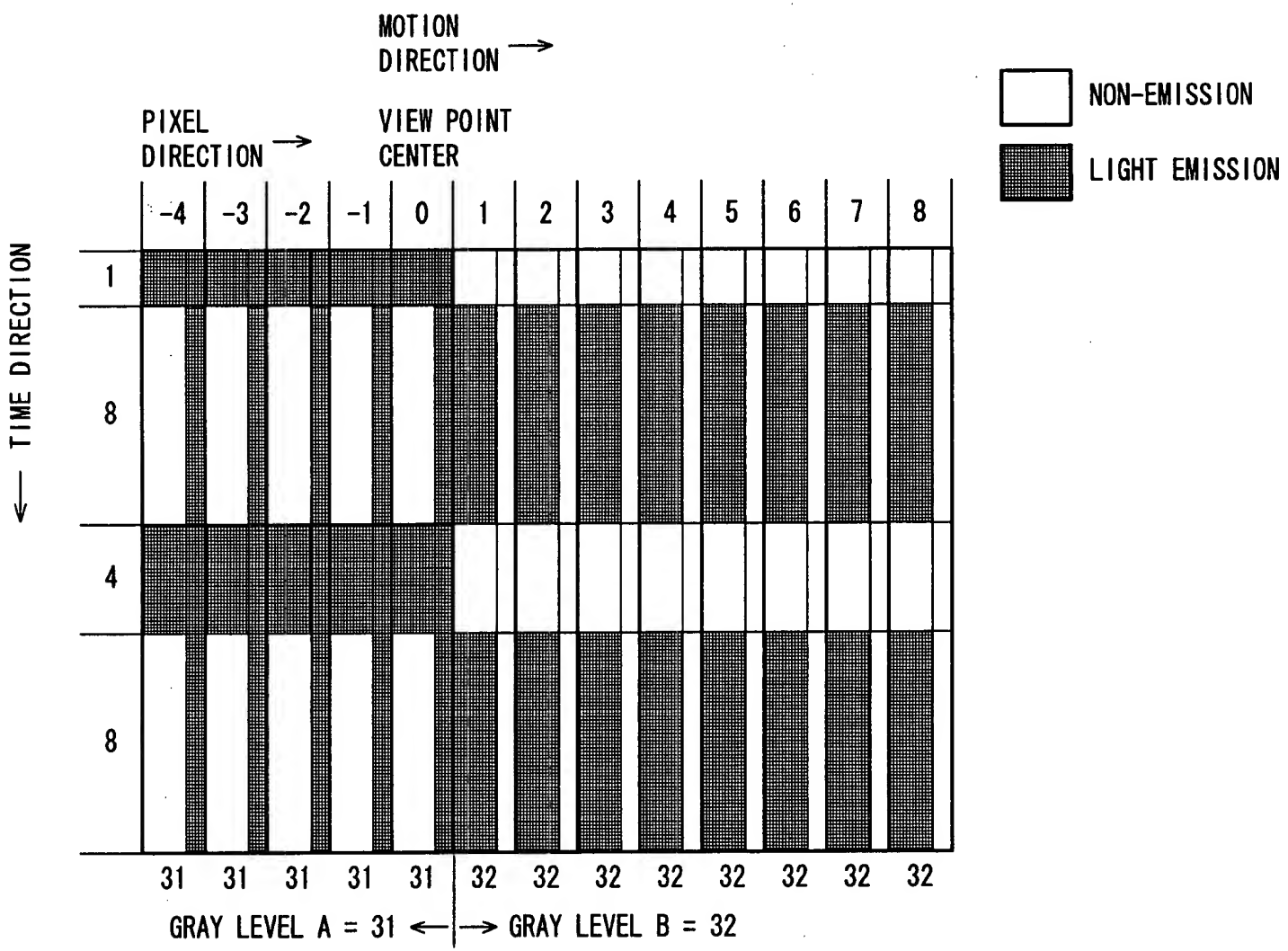

MOTION DIRECTION
PIXEL DIRECTION
VIEW POINT CENTER
NON-EMISSION
LIGHT EMISSION
TIME DIRECTION
-4 -3 -2 -1 0 1 2 3 4 5 6 7 8
1
8
4
8
31 31 31 31 31 32 32 32 32 32 32 32 32
GRAY LEVEL A = 31
GRAY LEVEL B = 32

FIG. 9

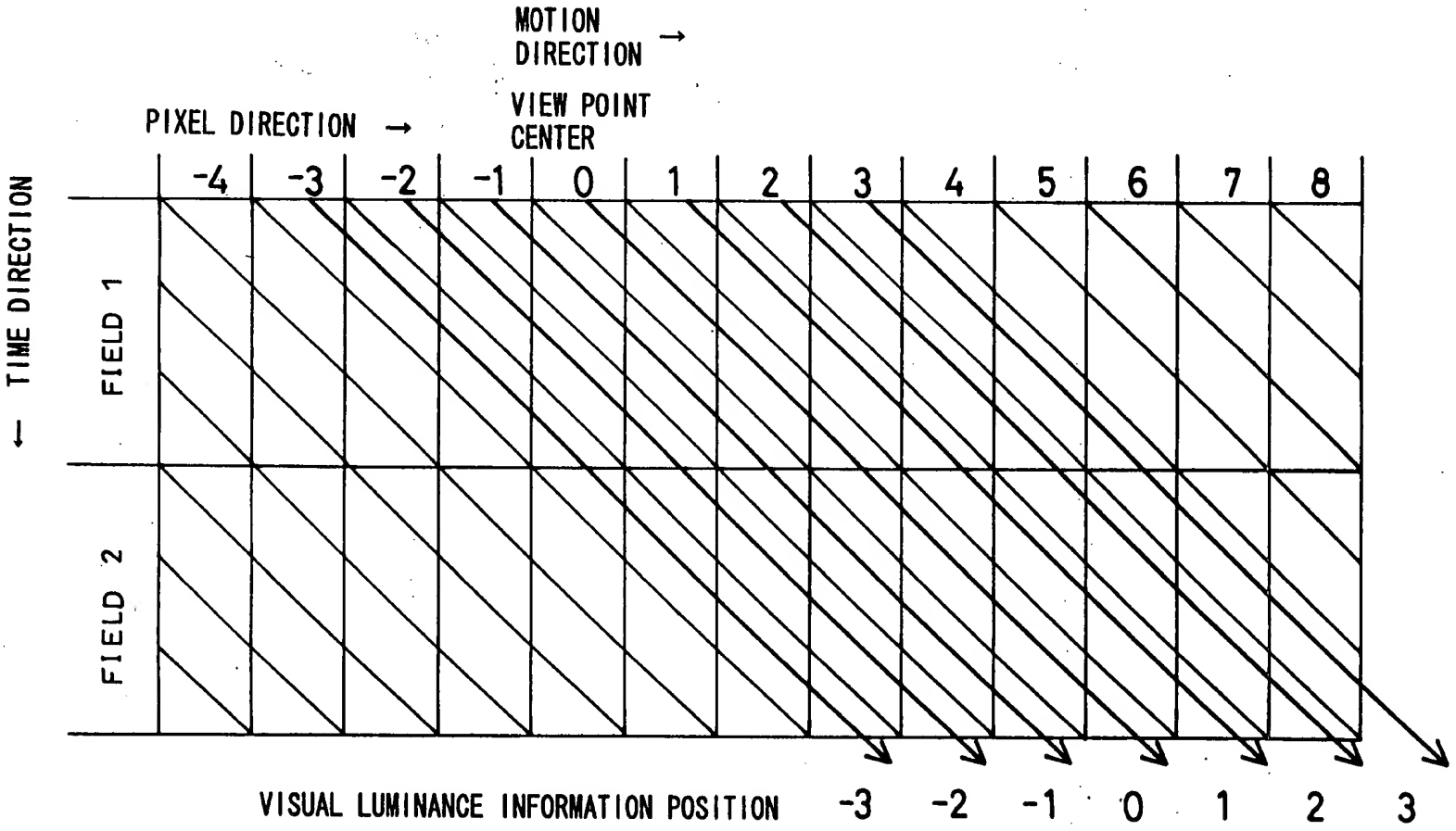

MOTION DIRECTION →
PIXEL DIRECTION →
VIEW POINT CENTER
-4 -3 -2 -1 0 1 2 3 4 5 6 7 8
← TIME DIRECTION
FIELD 1
FIELD 2
VISUAL LUMINANCE INFORMATION POSITION
-3 -2 -1 0 1 2 3

FIG. 10

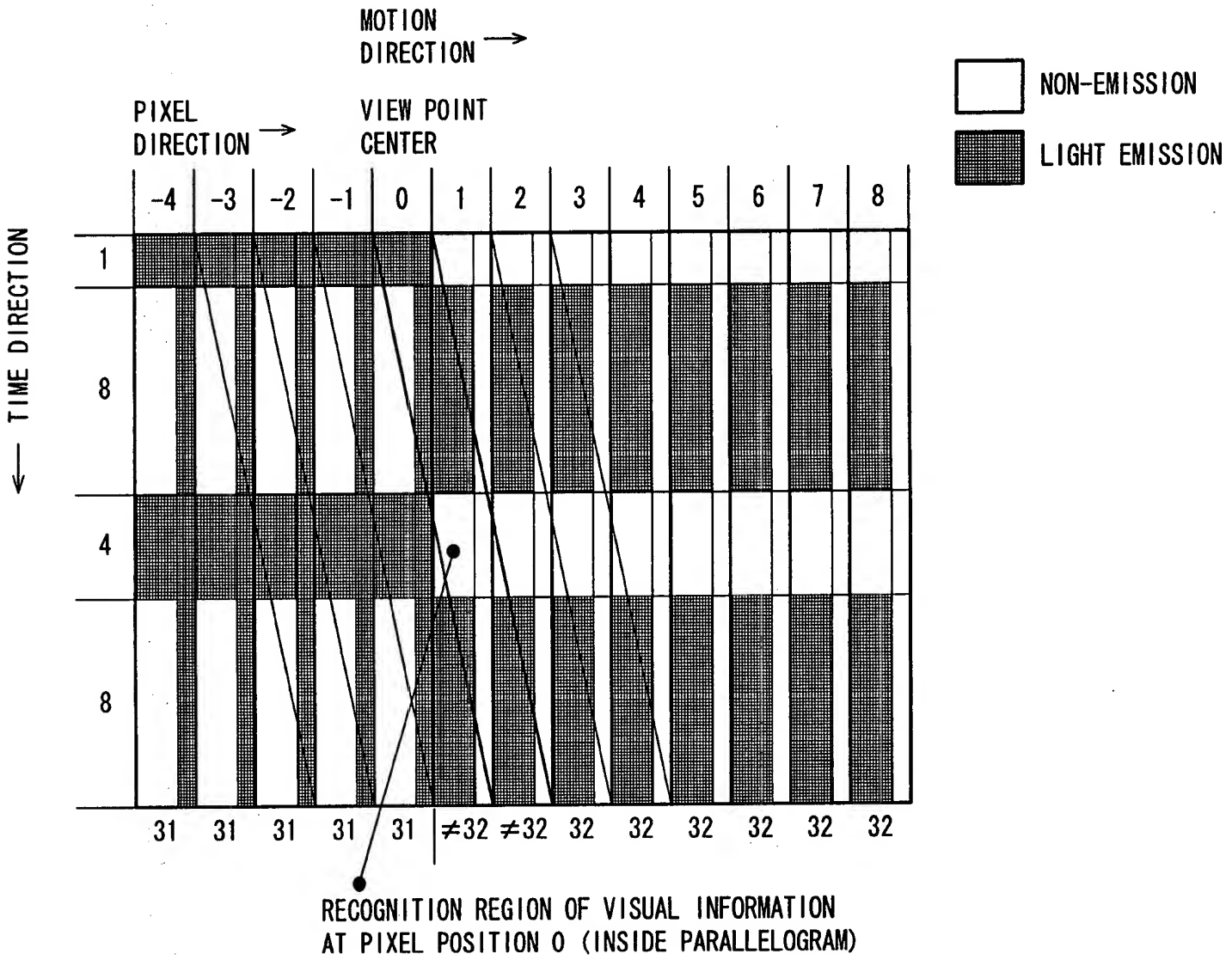

MOTION DIRECTION
PIXEL DIRECTION
VIEW POINT CENTER
NON-EMISSION
LIGHT EMISSION
TIME DIRECTION
-4 -3 -2 -1 0 1 2 3 4 5 6 7 8
1
8
4
8
31 31 31 31 31 ≠32 ≠32 32 32 32 32 32 32
RECOGNITION REGION OF VISUAL INFORMATION
AT PIXEL POSITION 0 (INSIDE PARALLELOGRAM)

FIG. 11 (a)

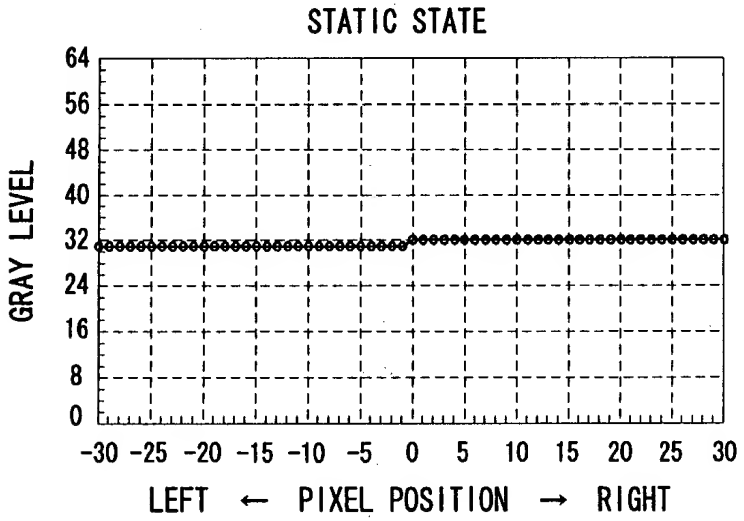



FIG. 11 (b)

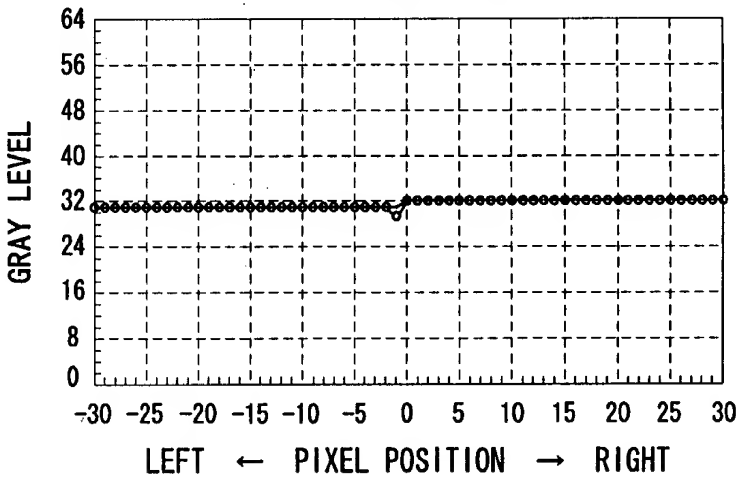



FIG. 11 (c)

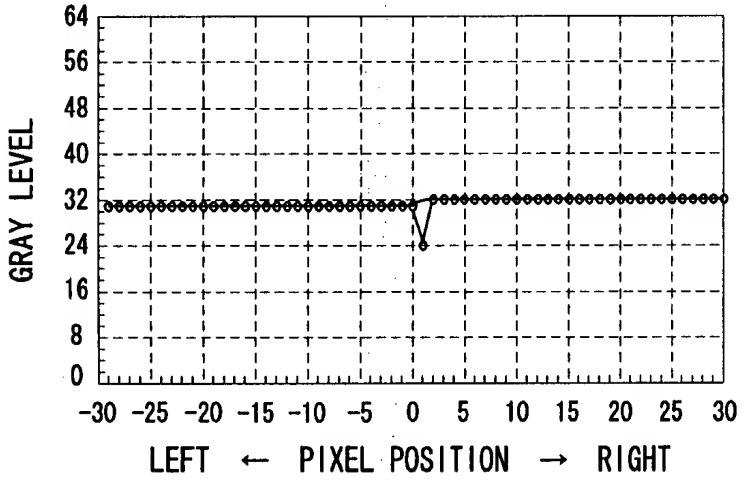


FIG. 12 (a)

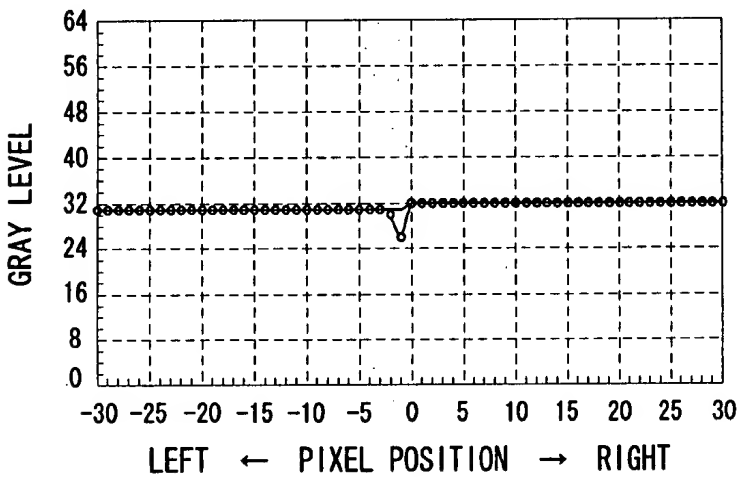



FIG. 12 (b)

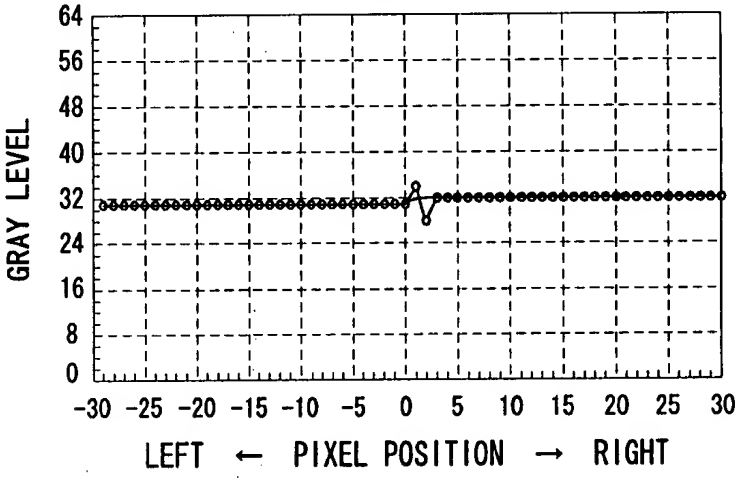



FIG. 12 (c)

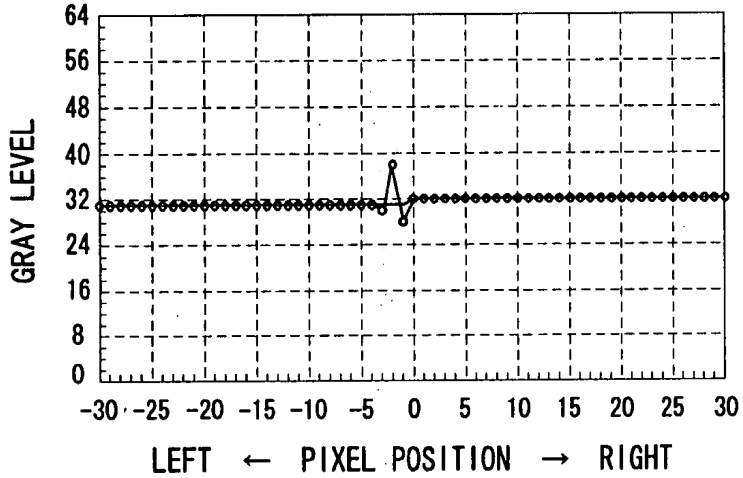



FIG. 12 (d)

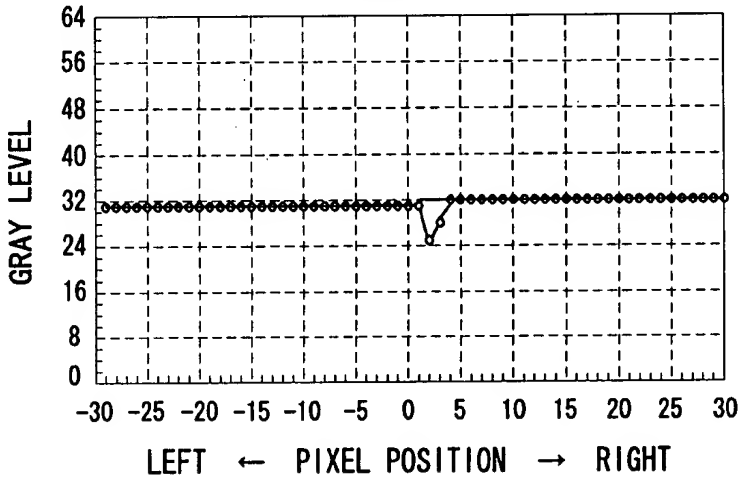


FIG. 13 (a) +5 PIXEL/FIELD

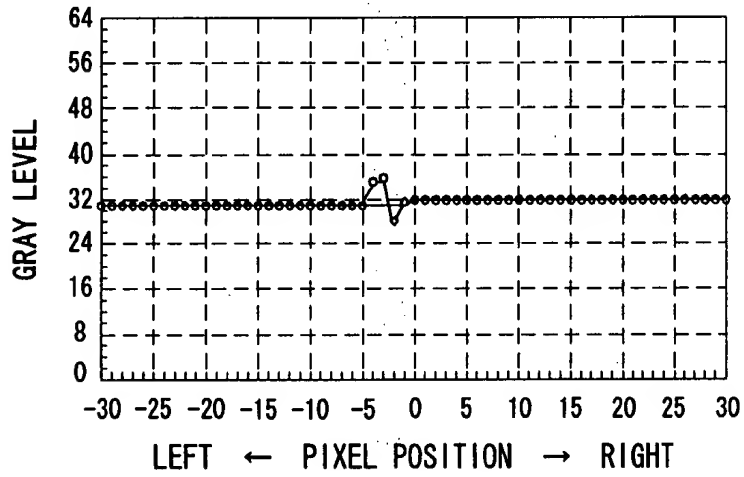



FIG. 13 (b) -5 PIXEL/FIELD

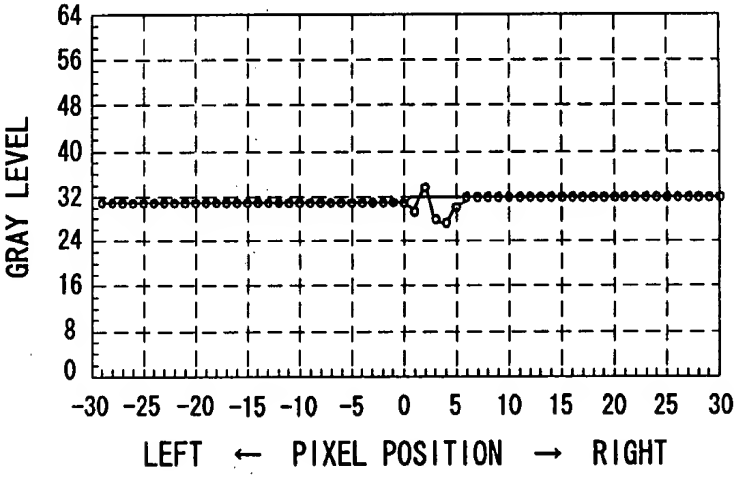



FIG. 13 (c) +10 PIXEL/FIELD

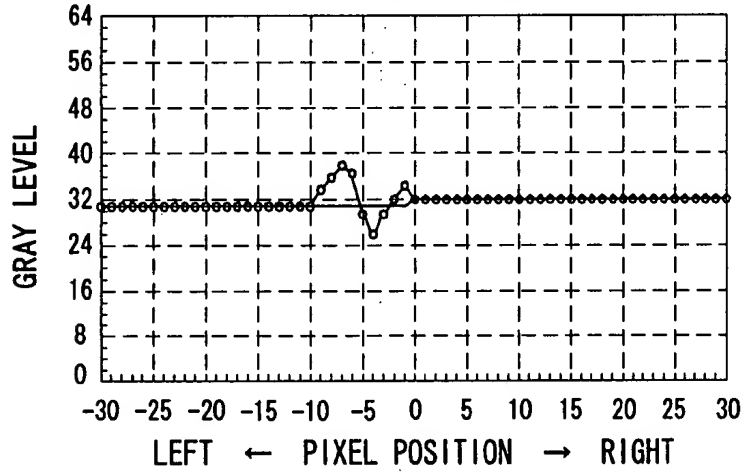
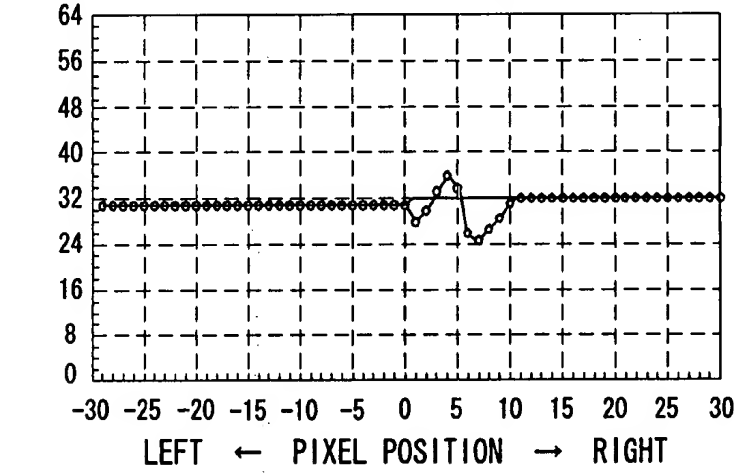



FIG. 13 (d) -10 PIXEL/FIELD




* In each drawing, O indicates a motion picture contour hindrance value, and - indicates an output gray level value of an original picture. The first redundancy signal pattern 1 is used.

FIG. 14 (a)

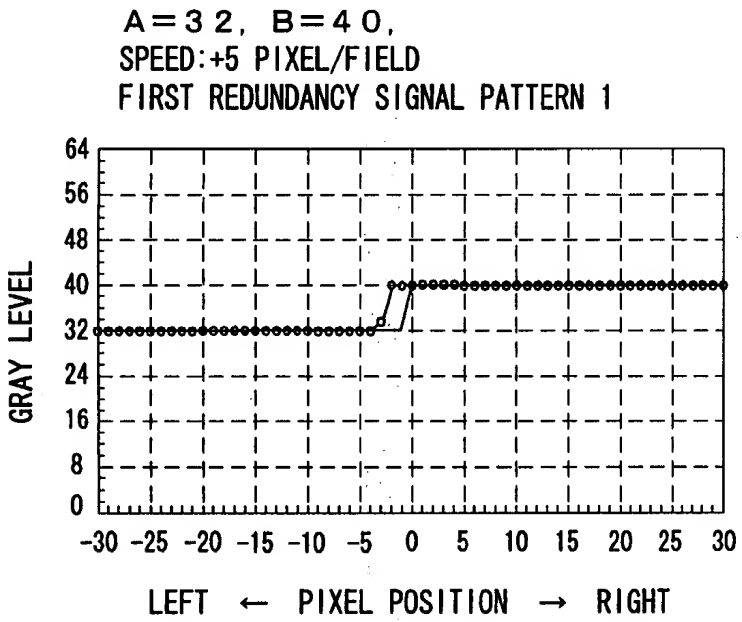



FIG. 14 (b)

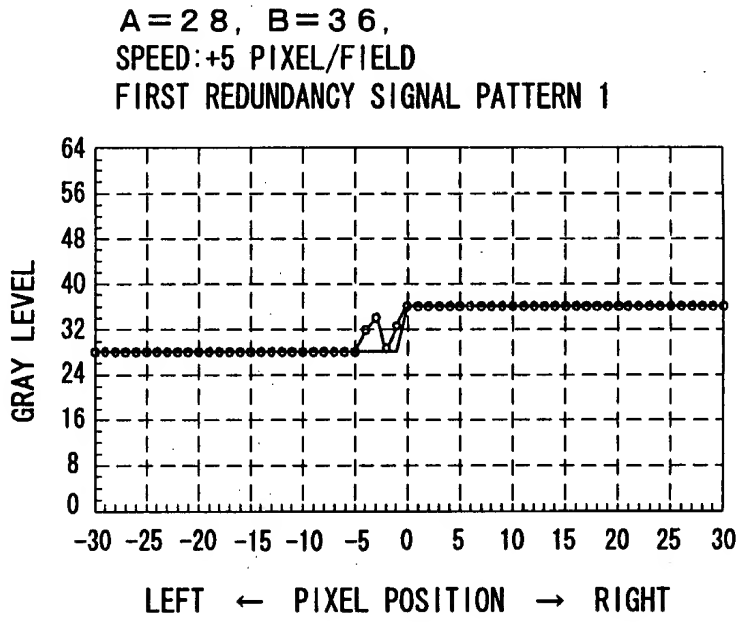


FIG. 15 (a)

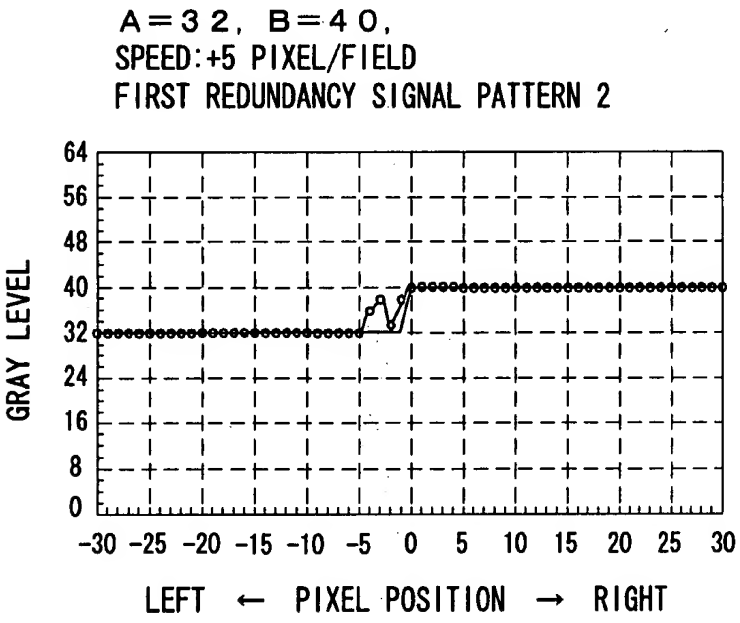



FIG. 15 (b)

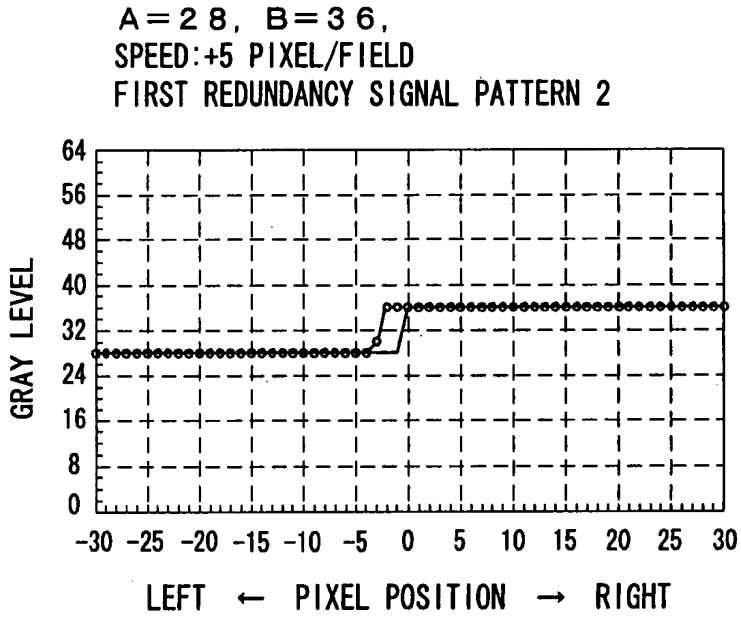


FIG. 16 (a)

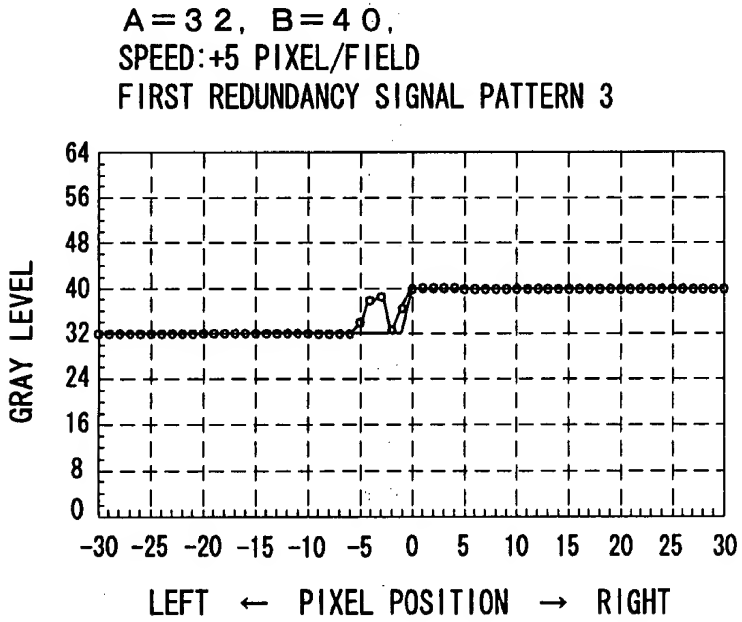



FIG. 16 (b)

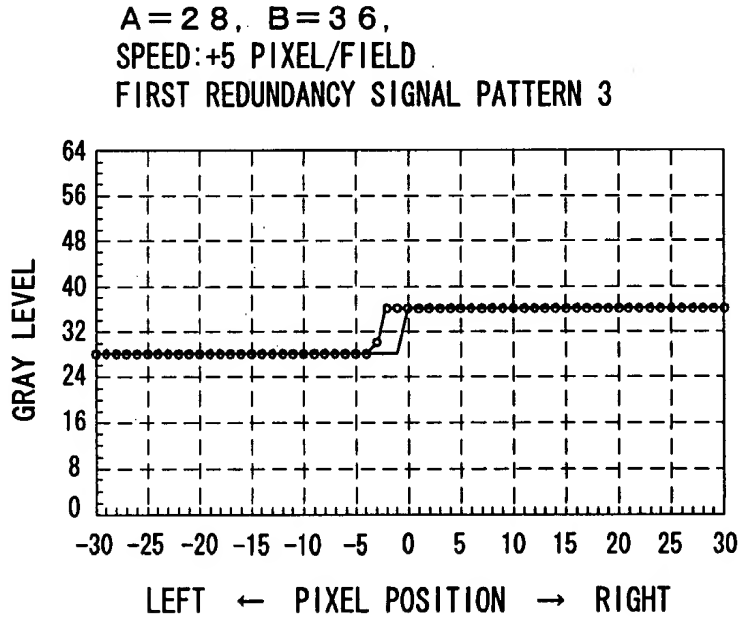


FIG. 17

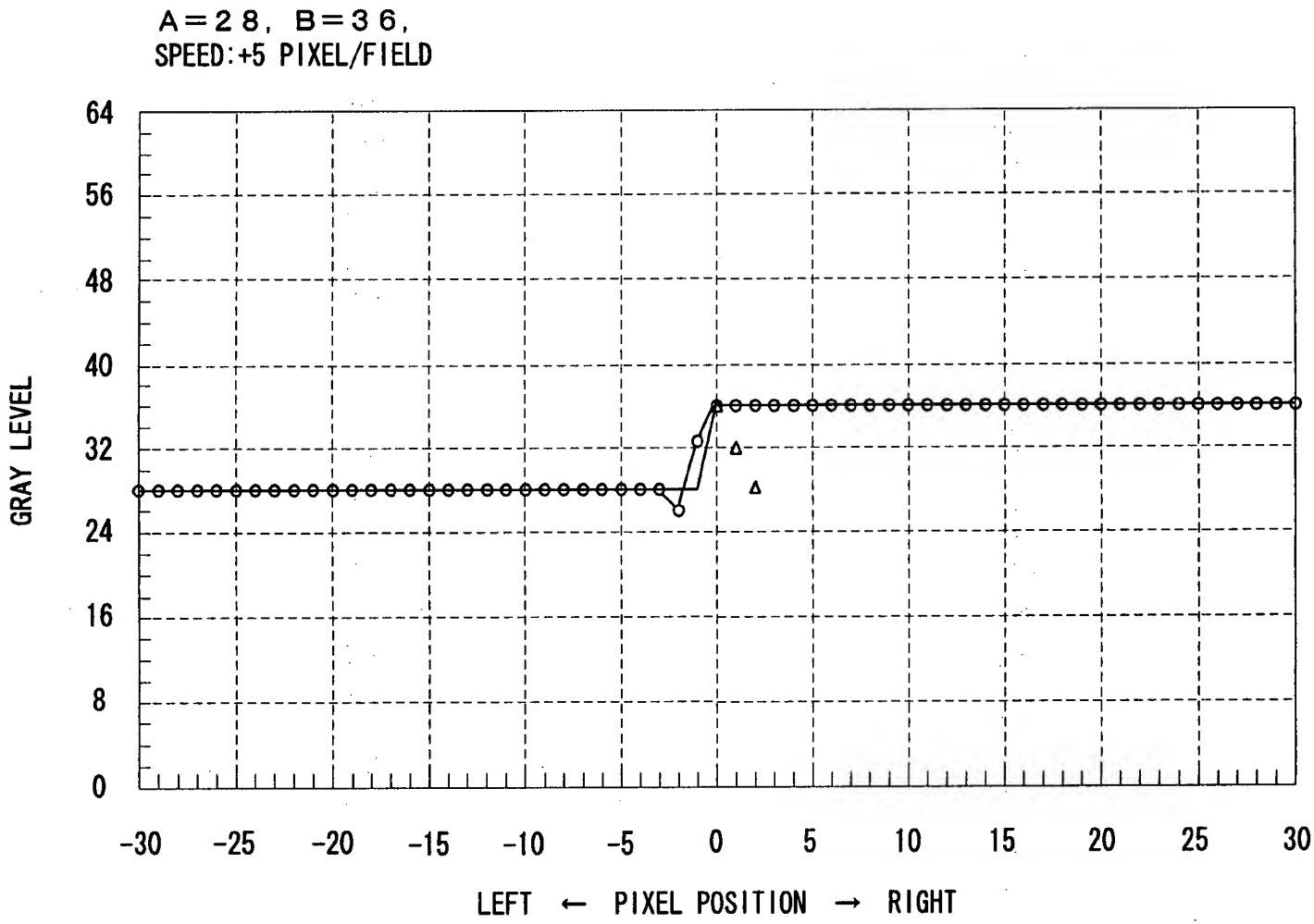

A=28, B=36,
SPEED:+5 PIXEL/FIELD
GRAY LEVEL
64
56
48
40
32
24
16
8
0
-30
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
LEFT ← PIXEL POSITION → RIGHT
SOLID LINE : GRAY LEVEL VALUE OF PICTURE
○ : GRAY LEVEL VALUE OF PICTURE WHEN MOVING
△ : CORRECTION GRAY LEVEL VALUE

FIG. 18

OUTPUT CORRECTION GRAY LEVEL DEPENDENT ON POSITIVE MOTION SPEED IN HORIZONTAL DIRECTION WHEN A=35 AND B=40
NUMBER IN () INDICATES REDUNDANCY PATTERN NUMBER.

| SPEED | PIXEL DISTANCE n FROM PIXEL A [PIXEL] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [PIXEL/FIELD] | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 0 | 35(1) | 40(1) | (CORRECTION IS UNNECESSARY FOR THIS SPEED) | | | | | |
| 1 | 35(1) | 32(1) | | | | | | |
| 2 | 35(1) | 32(1) | | | | | | |
| 3 | 35(1) | 32(1) | 32(1) | | | | | |
| 4 | 35(1) | 32(1) | 32(1) | | | | | |
| 5 | 35(1) | 32(1) | 32(1) | | | | | |
| 6 | 35(1) | 32(1) | 32(1) | 32(1) | | | | |
| 7 | 35(1) | 32(1) | 32(1) | 32(1) | | | | |
| 8 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | | | |
| 9 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | | | |
| 10 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | | |
| 11 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | | |
| 12 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | |
| 13 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | |
| 14 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) |
| 15 | 35(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) | 32(1) |

FIG. 19

OUTPUT CORRECTION GRAY LEVEL DEVIATION DEPENDENT ON POSITIVE MOTION SPEED IN HORIZONTAL DIRECTION WHEN A=35 AND B=40

| SPEED | PIXEL DISTANCE n FROM PIXEL A [PIXEL] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [PIXEL/FIELD] | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 0 | 0 (1) | 0 (1) | (CORRECTION IS UNNECESSARY FOR THIS SPEED) | | | | | |
| 1 | 0 (1) | − 8 (1) | | | | | | |
| 2 | 0 (1) | − 8 (1) | | | | | | |
| 3 | 0 (1) | − 8 (1) | − 8 (1) | | | | | |
| 4 | 0 (1) | − 8 (1) | − 8 (1) | | | | | |
| 5 | 0 (1) | − 8 (1) | − 8 (1) | | | | | |
| 6 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | | | | |
| 7 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | | | | |
| 8 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | | | |
| 9 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | | | |
| 10 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | | |
| 11 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | | |
| 12 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | |
| 13 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | |
| 14 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) |
| 15 | 0 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) | − 8 (1) |

FIG. 20

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A\B | 0 1 2 3 | 4 5 6 7 | 8 9 10 11 | 12 13 14 15 | 16 17 18 19 | 20 21 22 23 | 24 25 26 27 | 28 29 30 31 |
|---|---|---|---|---|---|---|---|---|
| 0 1 2 3 | N | E (1) | E (1) | E (1) | F (2) | F (2) | F (2) | F (2) |
| 4 5 6 7 | E (1) | N | E (1) | E (1) | F (2) | F (2) | F (2) | F (2) |
| 8 9 10 11 | E (1) | E (1) | N | E (1) | F (2) | F (2) | F (2) | F (2) |
| 12 13 14 15 | E (1) | E (1) | E (1) | N | C (2) | C (2) | C (2) | C (2) |
| 16 17 18 19 | C (3) | C (3) | C (3) | C (3) | N | E (1) | E (1) | E (1) |
| 20 21 22 23 | F (3) | F (3) | F (3) | F (3) | E (1) | N | E (1) | E (1) |
| 24 25 26 27 | F (3) | F (3) | F (3) | F (3) | E (1) | E (1) | N | E (1) |
| 28 29 30 31 | F (3) | F (3) | F (3) | F (3) | E (1) | E (1) | E (1) | N |

FIG.21

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A \ B | 32 33 34 35 | 36 37 38 39 | 40 41 42 43 | 44 45 46 47 | 48 49 50 51 | 52 53 54 55 | 56 57 58 59 | 60 61 62 63 |
|---|---|---|---|---|---|---|---|---|
| 0 1 2 3 | F (2) | F (2) | F (2) | F (2) | F (2) | F (2) | F (2) | F (2) |
| 4 5 6 7 | F (2) | F (2) | F (2) | F (2) | F (2) | F (2) | F (2) | F (2) |
| 8 9 10 11 | F (2) ** | F (2) ** | F (2) ** | F (2) ** | F (2) | F (2) | F (2) | F (2) |
| 12 13 14 15 | F (2) * | F (2) * | F (2) * | F (2) * | F (2) | F (2) | F (2) | F (2) |
| 16 17 18 19 | f (2) | f (2) | f (2) | f (2) | F (2) | F (2) | F (2) | F (2) |
| 20 21 22 23 | f (2) | f (2) | f (2) | f (2) | F (2) | F (2) | F (2) | F (2) |
| 24 25 26 27 | f (2) * | f (2) * | f (2) * | f (2) * | F (2) | F (2) | F (2) | F (2) |
| 28 29 30 31 | D (2) | f (2) ** | f (2) ** | f (2) ** | F (2) | F (2) | F (2) | F (2) |

FIG. 22

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A\B | 0 1 2 3 | 4 5 6 7 | 8 9 10 11 | 12 13 14 15 | 16 17 18 19 | 20 21 22 23 | 24 25 26 27 | 28 29 30 31 |
|---|---|---|---|---|---|---|---|---|
| 32 33 34 35 | F (3) | F (3) | F (3) | F (3) | f (3) ** | f (3) ** | f (3) ** | D (3) |
| 36 37 38 39 | F (3) | F (3) | F (3) | F (3) | f (3) * | f (3) * | f (3) * | f (3) * |
| 40 41 42 43 | F (3) | F (3) | F (3) | F (3) | f (3) | f (3) | f (3) | f (3) |
| 44 45 46 47 | F (3) | F (3) | F (3) | F (3) | f (3) | f (3) | f (3) | f (3) |
| 48 49 50 51 | F (3) | F (3) | F (3) | F (3) | F (3) * | F (3) * | F (3) * | F (3) * |
| 52 53 54 55 | F (3) | F (3) | F (3) | F (3) | F (3) ** | F (3) ** | F (3) ** | F (3) ** |
| 56 57 58 59 | F (3) | F (3) | F (3) | F (3) | F (3) | F (3) | F (3) | F (3) |
| 60 61 62 63 | F (3) | F (3) | F (3) | F (3) | F (3) | F (3) | F (3) | F (3) |

FIG. 23

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A \ B | 32 33 34 35 | 36 37 38 39 | 40 41 42 43 | 44 45 46 47 | 48 49 50 51 | 52 53 54 55 | 56 57 58 59 | 60 61 62 63 |
|---|---|---|---|---|---|---|---|---|
| 32 33 34 35 | N | E (1) | E (1) | E (1) | F (2) | F (2) | F (2) | F (2) |
| 36 37 38 39 | E (1) | N | E (1) | E (1) | F (2) | F (2) | F (2) | F (2) |
| 40 41 42 43 | E (1) | E (1) | N | E (1) | F (2) | F (2) | F (2) | F (2) |
| 44 45 46 47 | E (1) | E (1) | E (1) | N | C (2) | C (2) | C (2) | C (2) |
| 48 49 50 51 | C (3) | C (3) | C (3) | C (3) | N | E (1) | E (1) | E (1) |
| 52 53 54 55 | F (3) | F (3) | F (3) | F (3) | E (1) | N | E (1) | E (1) |
| 56 57 58 59 | F (3) | F (3) | F (3) | F (3) | E (1) | E (1) | N | E (1) |
| 60 61 62 63 | F (3) | F (3) | F (3) | F (3) | E (1) | E (1) | E (1) | N |

# FIG. 24

| SYMBOL | FORMULAE |
|---|---|
| N | $G_n=B,\ n=1$ |
| E(1) | $G_n=B-4TM,\ n=1\sim Nmax(V),\ Nmax(V)=V/2+\{V<4\}$ |
| C(Jh) | $G_1=B-4T[M-2+\{AND(M=1, OR(V=4, V>=8))\}+2\{AND(M=1, V<=2)\}+\{AND(OR(M=2, M=4), V<=2\}]$<br>$G_2=G_1-4T[2-\{AND(M=1, OR(V=2, V=4, V>=8))\}+\{AND(M=1, V=3)\}-\{AND(M=2, V=2)\}-\{AND(M=3, V<=3\}]$<br>$G_n=G_{n-1}-4T,\ n=1\sim Nmax(V),\ Nmax(V)=1+\{AND(M<=3, V>=2)\}+\{AND(M=4, V>=3)\}+\{AND(M<=2, V>=4)\}+\{AND(M>=3, V>=5)\}$ |
| D(Jh) | $G_1=B+4T[1-\{V=2\}+\{V=1\}],\ G_2=G_1-4T[2-\{V<=3\}]$<br>$G_n=G_{n-1}-4T,\ n=1\sim Nmax(V),\ Nmax(V)=1+\{V>=2\}+\{V>=3\}$ |
| F(Jh) | $G_1=B-4T[J+\{AND(J=1, V<=3)\}+\{AND(J=2, V<=4)\}+\{AND(J>=3, V<=5)\}],\ G_n=G_{n-1}-4T,\ n=1\sim Nmax(V)$<br>$Nmax(V)=1+\{AND(J=0, V>=2)\}+\{AND(J=1, V>=3)\}+\{AND(J>=2, V>=4)\}+\{AND(J=0, V>=4)\}+\{AND(J=1, V>=5)\}+\{AND(J>=2, V>=6)\}]$ |
| F(Jh)* | $G_1=B-4T[J+\{AND(J=0, V<=3)\}+\{AND(J=1, V<=4)\}+\{AND(J>=2, V<=5)\}],\ G_n=G_{n-1}-4T,\ n=1\sim Nmax(V)$<br>$Nmax(V)=1+2\{AND(J=0, V>=4)\}+2\{AND(J=1, V>=5)\}+2\{AND(J>=2, V>=6)\}$ |
| F(Jh)** | $G_1=B-4T[J+\{AND(J=0, V<=3)\}+\{AND(J=1, V<=4)\}+\{AND(J>=2, V<=5)\}],\ G_n=G_{n-1}-4T,\ n=1\sim Nmax(V)$<br>$Nmax(V)=1+\{AND(J<=1, V>=3)\}+\{AND(J>=2, V>=4)\}+\{AND(J=0, V>=4)\}+\{AND(J=1, V>=5)\}+\{AND(J>=2, V>=6)\}]$ |
| f(Jh) | $G_1=B-4TJ,\ G_n=G_{n-1}-4T,\ n=1\sim Nmax(V)$<br>$Nmax(V)=1+\{AND(J=0, V>=2)\}+\{AND(J=1, V>=3)\}+\{AND(J>=2, V>=4)\}+\{AND(J=0, V>=4)\}+\{AND(J=1, V>=5)\}+\{AND(J>=2, V>=6)\}]$ |
| f(Jh)* | $G_1=B-4T[J-\{V=1\}],\ G_n=G_{n-1}-4T,\ n=1\sim Nmax(V)$<br>$Nmax(V)=1+\{AND(J=0, V>=2)\}+\{AND(J=1, V>=3)\}+\{AND(J>=2, V>=4)\}+\{AND(J=0, V>=4)\}+\{AND(J=1, V>=5)\}+\{AND(J>=2, V>=6)\}]$ |
| f(Jh)** | $G_1=B-4T[J-1-\{V=1\}],\ G_n=G_{n-1}-4T,\ n=1\sim Nmax(V)$<br>$Nmax(V)=1+\{AND(J<=2, V>=2)\}+\{AND(J>=3, V>=4)\}+\{AND(J>=2, V>=4)\}+\{AND(J>=3, V>=6)\}$ |

A:GRAY LEVEL VALUE OF FOCUSED PIXEL
B:GRAY LEVEL VALUE OF PIXEL ADJACENT IN MOTION DIRECTION
V:ABSOLUTE VALUE OF MOTION SPEED [PIXEL/FIELD]
$M=|(B/4)-(A/4)|$ :NUMBER OF SHIFT BLOCKS FOR EVERY UNIT OF 4 GRAY LEVELS
$K=|4(B/16)-(A/4)|$ :INTERNAL-BLOCK-USE VARIABLE FOR EVERY UNIT OF 16 GRAY LEVELS
J=M-K:CALCULATION-USE INTERNAL VARIABLE
$T=(B-A)/|B-A|$ :INCREASE/DECREASE OF CHANGE OF GRAY LEVEL VALUE IN MOTION DIRECTION (INCREASE:POSITIVE VALUE, DECREASE:NEGATIVE VALUE)
n:PIXEL DISTANCE FROM PIXEL A AS STARTING POINT (LET DISTANCE IN MOTION DIRECTION BE EXPRESSED WITH A POSITIVE VALUE)
Gn:GRAY LEVEL VALUE OF CORRECTION SIGNAL AT POSITION n
Nmax:MAXIMUM NUMBER OF CORRECTION SIGNALS
$Jh=1+\{T>0\}+2\{T<0\}$ :REFERENTIAL NUMERAL OF REDUNDANCY SIGNAL PATTERN OF CORRECTION SIGNAL TO BE INSERTED

Results of logical operations described in {} indicate True=1 or False=0.
In a division calculation, an integer result is derived by dropping a fraction.

# FIG. 25

SECOND REDUNDANCY SIGNAL PATTERN 1

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 8 | | 4 | | 1 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 8 | 16 | 4 | 8 | 1 | 2 | 8 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 6 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 7 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 11 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 12 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 14 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| 15 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 16 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 17 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 18 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 19 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 20 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 21 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 22 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 23 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| 24 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 25 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 26 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 27 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 28 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| 29 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| 30 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 31 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 8 | | 4 | | 1 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 8 | 16 | 4 | 8 | 1 | 2 | 8 | 16 |
| 32 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 33 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 34 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 35 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| 36 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 37 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 38 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 39 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 40 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 41 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 42 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 43 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 44 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 45 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 46 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 47 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 48 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 49 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| 50 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 51 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 52 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| 53 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| 54 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 55 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 56 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 57 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 58 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 59 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 60 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 61 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 62 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

# FIG. 26

SECOND REDUNDANCY SIGNAL PATTERN 2

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 8 | | 4 | | 1 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 8 | 16 | 4 | 8 | 1 | 2 | 8 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 6 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 7 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 10 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 11 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 12 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 13 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 14 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 15 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 16 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 18 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 19 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 20 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 21 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 22 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| 23 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 24 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 25 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 26 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 27 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 28 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 29 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 30 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 31 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 8 | | 4 | | 1 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 8 | 16 | 4 | 8 | 1 | 2 | 8 | 16 |
| 32 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 33 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| 34 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| 35 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
| 36 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
| 37 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| 38 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| 39 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 40 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 41 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 42 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 43 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| 44 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 45 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 46 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 47 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 48 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 49 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 50 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 51 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 52 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 53 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 54 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 55 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 56 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 57 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 58 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 59 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 60 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 61 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 62 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

# FIG. 27

SECOND REDUNDANCY SIGNAL PATTERN 3

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 8 | | 4 | | 1 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 8 | 16 | 4 | 8 | 1 | 2 | 8 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 6 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 7 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 9 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 11 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 12 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 13 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 14 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 15 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| 16 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 17 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 18 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 19 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 20 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| 21 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| 22 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 23 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 25 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 26 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 27 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |
| 28 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 29 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 30 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 31 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |

| SUB-FIELD | SF1 | | SF2 | | SF3 | | SF4 | |
|---|---|---|---|---|---|---|---|---|
| TIME DIVISION RATIO | 8 | | 4 | | 1 | | 8 | |
| PIXEL DIVISION RATIO | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| GRAY LEVEL/ WEIGHT TOTAL | 8 | 16 | 4 | 8 | 1 | 2 | 8 | 16 |
| 32 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 33 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 34 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 35 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |
| 36 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 37 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| 38 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| 39 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| 40 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 41 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| 42 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 43 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 44 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| 45 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| 46 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 47 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 48 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 49 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 50 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 51 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 52 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 53 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 54 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 55 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 56 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 57 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 58 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 59 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 60 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 61 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 62 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

FIG. 28

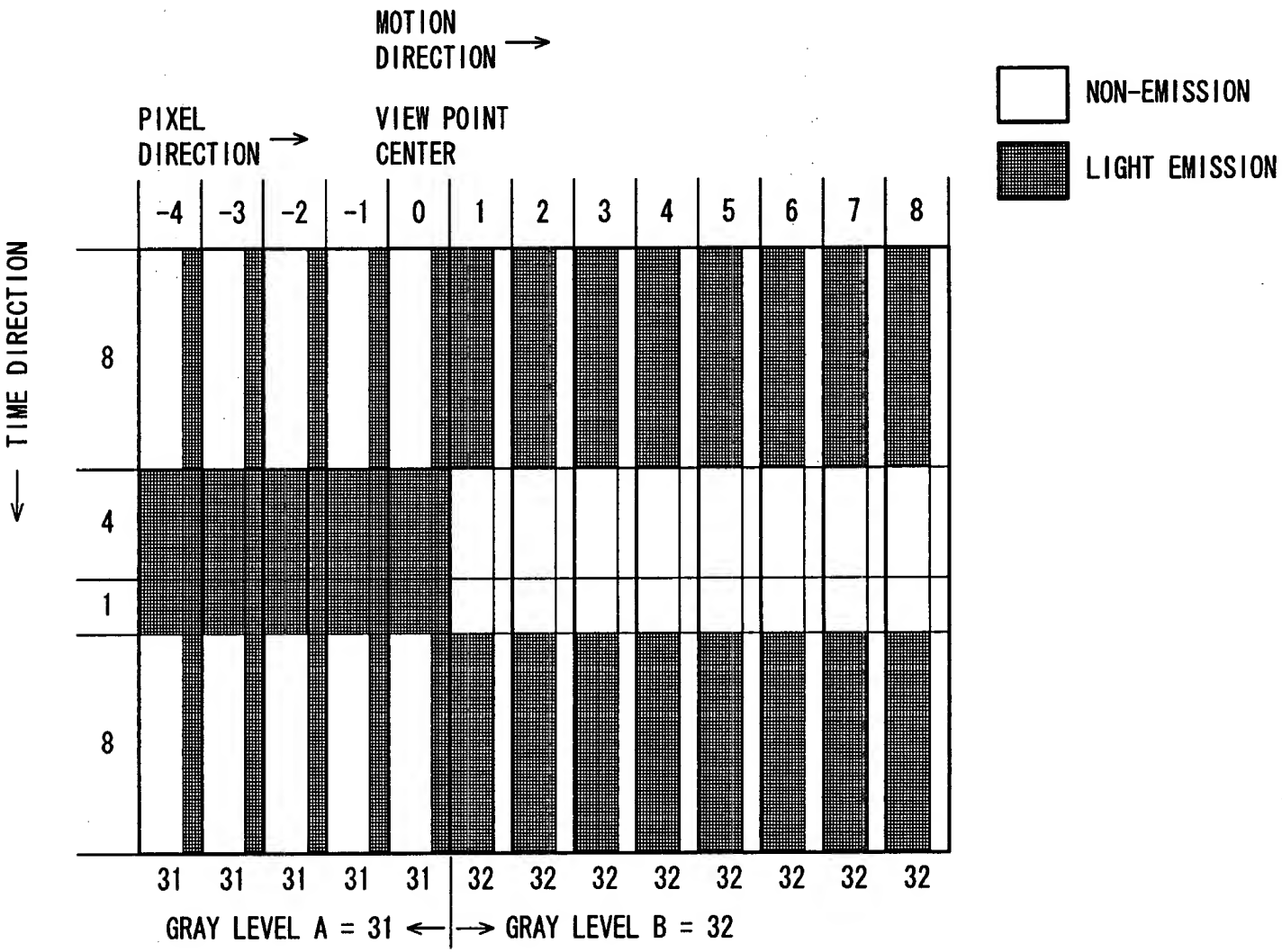

MOTION DIRECTION
PIXEL DIRECTION
VIEW POINT CENTER
NON-EMISSION
LIGHT EMISSION
TIME DIRECTION
-4 -3 -2 -1 0 1 2 3 4 5 6 7 8
8
4
1
8
31 31 31 31 31 32 32 32 32 32 32 32 32
GRAY LEVEL A = 31
GRAY LEVEL B = 32

FIG. 29

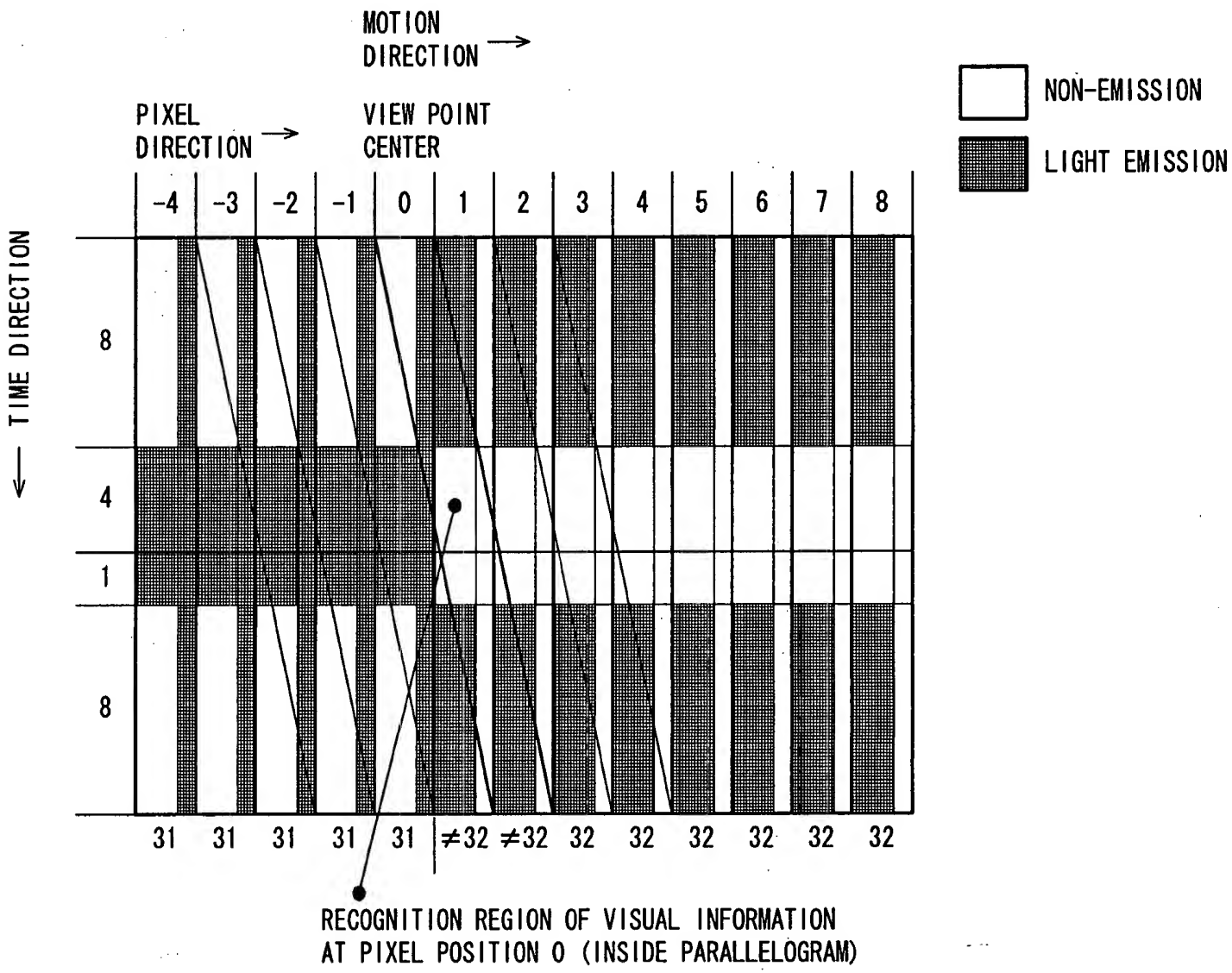

MOTION DIRECTION
PIXEL DIRECTION
VIEW POINT CENTER
NON-EMISSION
LIGHT EMISSION
TIME DIRECTION
-4 -3 -2 -1 0 1 2 3 4 5 6 7 8
8
4
1
8
31 31 31 31 31 ≠32 ≠32 32 32 32 32 32 32
RECOGNITION REGION OF VISUAL INFORMATION
AT PIXEL POSITION 0 (INSIDE PARALLELOGRAM)

FIG. 30

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A\B | 0 1 2 3 | 4 5 6 7 | 8 9 10 11 | 12 13 14 15 | 16 17 18 19 | 20 21 22 23 | 24 25 26 27 | 28 29 30 31 |
|---|---|---|---|---|---|---|---|---|
| 0 1 2 3 | N | N / C1 N C1 C1 N | N / C1 N C1 C1 N | N / N N C1 N | N / D1 N D1 D1 N | N / C1 N C1 C1 N | N / C1 N C1 C1 N | N / N N C1 N |
| 4 5 6 7 | N / C1 C1 N C1 / N / N | N | N / N N C1 N / C1 / N N C1 N | N / N / C1 N C1 C1 / N | E2 | N / N N E2 N / E2 / N N E2 N | N / C1 N C1 C1 / N | N / C1 N C1 C1 / N |
| 8 9 10 11 | N / C1 C1 N C1 / N / N | N C1 N N / N C1 N N | C1 | N | E2 | E2 | N / N N E2 N / E2 / N | N / C1 N C1 C1 / N |
| 12 13 14 15 | N / N C1 N N / N / N | N / C1 C1 N C1 / N | N / C1 C1 N C1 / N / N | N | F2 | E2 | E2 | N / D1 N D1 D1 / N |
| 16 17 18 19 | N / D1 D1 N D1 / N / N | E3 | E3 | F3 | N | N / C1 N C1 C1 / N | N / C1 N C1 C1 / N | N / N N C1 N / C1 / N |
| 20 21 22 23 | N / C1 C1 N C1 / N / N | N E3 N N / N / E3 N E3 N N | E3 | E3 | N / C1 C1 N C1 / N / N | N | N / N N C1 N / C1 / N | N / C1 N C1 C1 / N |
| 24 25 26 27 | N / C1 C1 N C1 / N / N | N / C1 C1 N C1 / N | N E3 N N / E3 / N N E3 N N | E3 | N / C1 C1 N C1 / N / N | N C1 N N / C1 / N N C1 N N | N | N / C1 N C1 C1 / N |
| 28 29 30 31 | N / N C1 N N / N / N | N / C1 C1 N C1 / N | N / C1 C1 N C1 / N / N | N / D1 D1 N D1 / N | N / N C1 N N / N | N / C1 C1 N C1 / N | N / C1 C1 N C1 / N | N |

FIG. 31

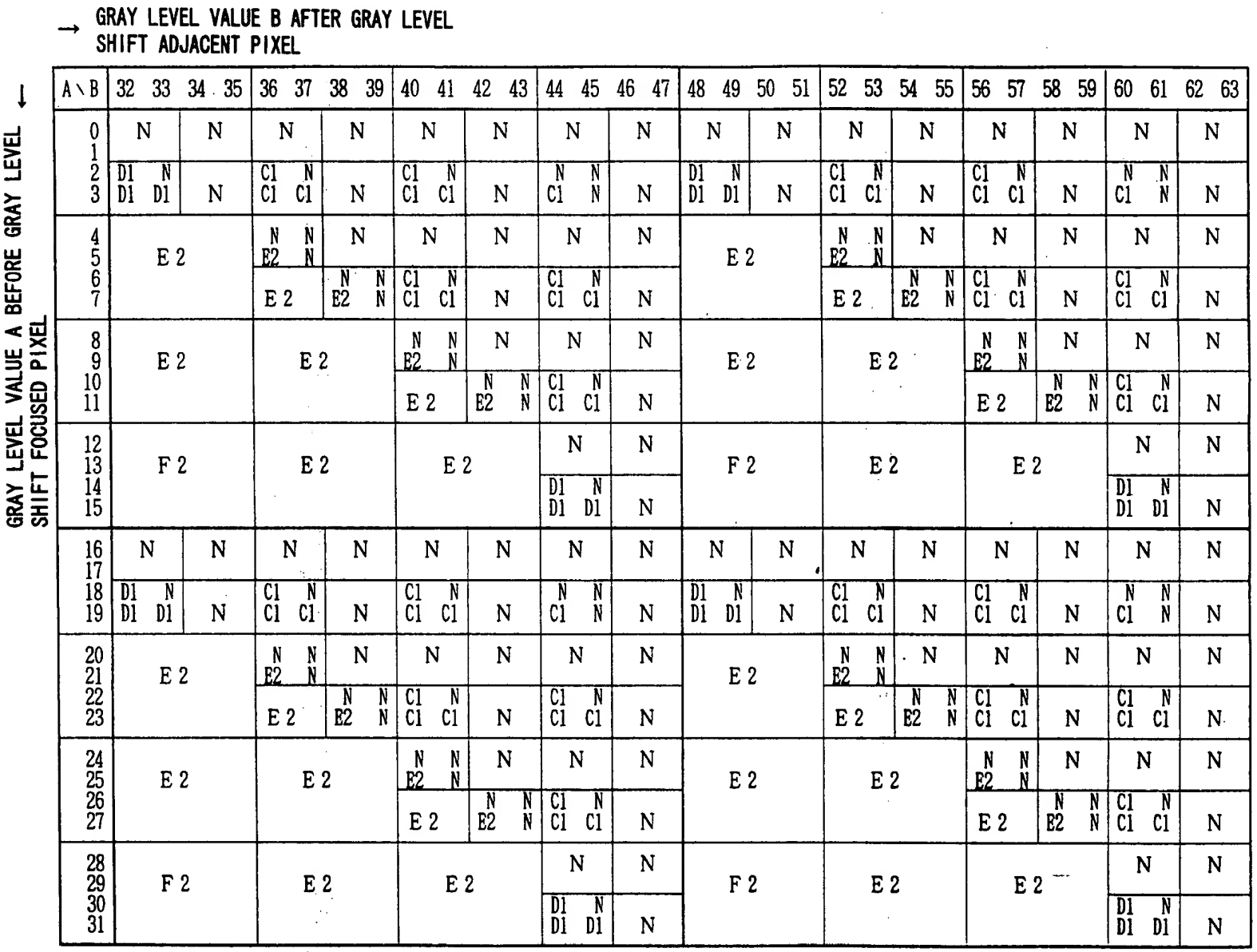

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL
↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL
A \ B
32 33 34 35
36 37 38 39
40 41 42 43
44 45 46 47
48 49 50 51
52 53 54 55
56 57 58 59
60 61 62 63
0 1 2 3
4 5 6 7
8 9 10 11
12 13 14 15
16 17 18 19
20 21 22 23
24 25 26 27
28 29 30 31
N
D1 N
D1 D1
C1 N
C1 C1
N N
E2 N
E 2
F 2

FIG. 32

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A\B | 0 1 | 2 3 | 4 5 | 6 7 | 8 9 | 10 11 | 12 13 | 14 15 | 16 17 | 18 19 | 20 21 | 22 23 | 24 25 | 26 27 | 28 29 | 30 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | N | D1 D1 | E 3 | | E 3 | | F 3 | | N | D1 D1 | E 3 | | E 3 | | F 3 | |
| 33 | | N D1 | | | | | | | | N D1 | | | | | | |
| 34 | N | N | | | | | | | N | N | | | | | | |
| 35 | | | | | | | | | | | | | | | | |
| 36 | N | C1 C1 | N E3 | E 3 | E 3 | | E 3 | | N | C1 C1 | N E3 | E 3 | E 3 | | E 3 | |
| 37 | | N C1 | N N | | | | | | | N C1 | N N | | | | | |
| 38 | N | N | N | N E3 | | | | | N | N | N | N E3 | | | | |
| 39 | | | | N N | | | | | | | | N N | | | | |
| 40 | N | C1 C1 | N | C1 C1 | N E3 | E 3 | E 3 | | N | C1 C1 | N | C1 C1 | N E3 | E 3 | E 3 | |
| 41 | | N C1 | | N C1 | N N | | | | | N C1 | | N C1 | N N | | | |
| 42 | N | N | N | N | N | N E3 | | | N | N | N | N | N | N E3 | | |
| 43 | | | | | | N N | | | | | | | | N N | | |
| 44 | N | N C1 | N | C1 C1 | N | C1 C1 | N | D1 D1 | N | N C1 | N | C1 C1 | N | C1 C1 | N | D1 D1 |
| 45 | | N N | | N C1 | | N C1 | | N D1 | | N N | | N C1 | | N C1 | | N D1 |
| 46 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| 47 | | | | | | | | | | | | | | | | |
| 48 | N | D1 D1 | E 3 | | E 3 | | F 3 | | N | D1 D1 | E 3 | | E 3 | | F 3 | |
| 49 | | N D1 | | | | | | | | N D1 | | | | | | |
| 50 | N | N | | | | | | | N | N | | | | | | |
| 51 | | | | | | | | | | | | | | | | |
| 52 | N | C1 C1 | N E3 | E 3 | E 3 | | E 3 | | N | C1 C1 | N E3 | E 3 | E 3 | | E 3 | |
| 53 | | N C1 | N N | | | | | | | N C1 | N N | | | | | |
| 54 | N | N | N | N E3 | | | | | N | N | N | N E3 | | | | |
| 55 | | | | N N | | | | | | | | N N | | | | |
| 56 | N | C1 C1 | N | C1 C1 | N E3 | E 3 | E 3 | | N | C1 C1 | N | C1 C1 | N E3 | E 3 | E 3 | |
| 57 | | N C1 | | N C1 | N N | | | | | N C1 | | N C1 | N N | | | |
| 58 | N | N | N | N | N | N E3 | | | N | N | N | N | N | N E3 | | |
| 59 | | | | | | N N | | | | | | | | N N | | |
| 60 | N | N C1 | N | C1 C1 | N | C1 C1 | N | D1 D1 | N | N C1 | N | C1 C1 | N | C1 C1 | N | D1 D1 |
| 61 | | N N | | N C1 | | N C1 | | N D1 | | N N | | N C1 | | N C1 | | N D1 |
| 62 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| 63 | | | | | | | | | | | | | | | | |

# FIG, 33

→ GRAY LEVEL VALUE B AFTER GRAY LEVEL SHIFT ADJACENT PIXEL

↓ GRAY LEVEL VALUE A BEFORE GRAY LEVEL SHIFT FOCUSED PIXEL

| A \ B | 32 33 34 35 | 36 37 38 39 | 40 41 42 43 | 44 45 46 47 | 48 49 50 51 | 52 53 54 55 | 56 57 58 59 | 60 61 62 63 |
|---|---|---|---|---|---|---|---|---|
| 32 33 34 35 | N | N / C1 N / C1 C1 / N | N / C1 N / C1 C1 / N | N / C1 N / N | N / D1 N / D1 | N / C1 N / C1 | N / C1 N / C1 | N / N C1 / N |
| 36 37 38 39 | N / C1 C1 / N C1 / N | N | N N / C1 N / C 1 / N N / C1 N / C1 | N / C1 N / C1 | E 2 | N N / E2 N / N / E 2 | N / C1 N / C1 | N / C1 N / C1 |
| 40 41 42 43 | N / C1 C1 / N C1 / N | N C1 / N N / N / N C1 / N N | N | N / C1 N / C1 | E 2 | E 2 | N N / E2 N / E 2 | N / C1 N / C1 |
| 44 45 46 47 | N / N C1 / N N / N | N / C1 C1 / N C1 / N | N | F 2 | E 2 | E 2 | N / D1 N / D1 | N |
| 48 49 50 51 | N / D1 D1 / N D1 / N | E 3 | E 3 | F 3 | N | N / C1 N / C1 | N / C1 N / C1 | N / N C1 / N |
| 52 53 54 55 | N / C1 C1 / N C1 / N | N E3 / N N / E 3 / N E3 / N N | E 3 | E 3 | N / C1 C1 / N C1 / N | N | N N / C1 N / C 1 / N N / C1 N | N / C1 N / C1 |
| 56 57 58 59 | N / C1 C1 / N C1 / N | N / C1 C1 / N C1 / N | N E3 / N N / E 3 / N E3 / N N | E 3 | N / C1 C1 / N C1 / N | N C1 / N N / C 1 / N C1 / N | N / C1 N / C1 | N / C1 N / C1 |
| 60 61 62 63 | N / N C1 / N N / N | N / C1 C1 / N C1 / N | N / C1 C1 / N C1 / N | N / D1 D1 / N D1 / N | N / N C1 / N N / N | N / C1 C1 / N C1 / N | N / C1 C1 / N C1 / N | N |

FIG. 34

| SYMBOL | FORMULAE |
|---|---|
| N | $G_n=B,\ n=1$ |
| $C_{Jh}$ | $G_n=B+2T\{V>=6\},\ n=1,\ Jh=1$ |
| $D_{Jh}$ | $G_n=B+2T\{V>=4\}$<br>$G_n=G_{n-1}$<br>$n=1\sim Nmax\ (V)$<br>$Nmax(V)=1+\{V>=4\}+\{V>=10\},\ Jh=1$ |
| $E_{Jh}$ | $G_n=A+4T\{V>=3\}$<br>$G_n=G_{n-1}$<br>$n=1\sim Nmax\ (V)$<br>$Nmax(V)=2+\{V>=5\}+\{V>=10\},\ Jh=1+\{T>0\}\ +2\{T<0\}$ |
| $F_{Jh}$ | $G_1=A+12T\{V=1\}+4T\{OR(V=2, V>=8)\}+8T\{AND(V>=3, V<=7)\}$<br>$G_2=A-4T\{OR(V=4, V=5)\}$<br>$G_n=G_{n-1}$<br>$n=1\sim Nmax\ (V)$<br>$Nmax(V)=1+\{V>=2\}+\{V>=6\}+\{V>=10\},\ Jh=1+\{T>0\}\ +2\{T<0\}$ |

A:GRAY LEVEL VALUE OF FOCUSED PIXEL
B:GRAY LEVEL VALUE OF PIXEL ADJACENT IN MOTION DIRECTION
V:ABSOLUTE VALUE OF MOTION SPEED [PIXEL/FIELD]
Jh:REFERENTIAL NUMERAL OF REDUNDANCY SIGNAL PATTERN OF
CORRECTION SIGNAL TO BE INSERTED
$T=(B-A)/|B-A|$ : INCREASE/DECREASE OF CHANGE OF GRAY LEVEL VALUE IN MOTION DIRECTION
(INCREASE:POSITIVE VALUE, DECREASE:NEGATIVE VALUE)
Results of logical operations described in {} indicate True=1 or False=0.

FIG. 35

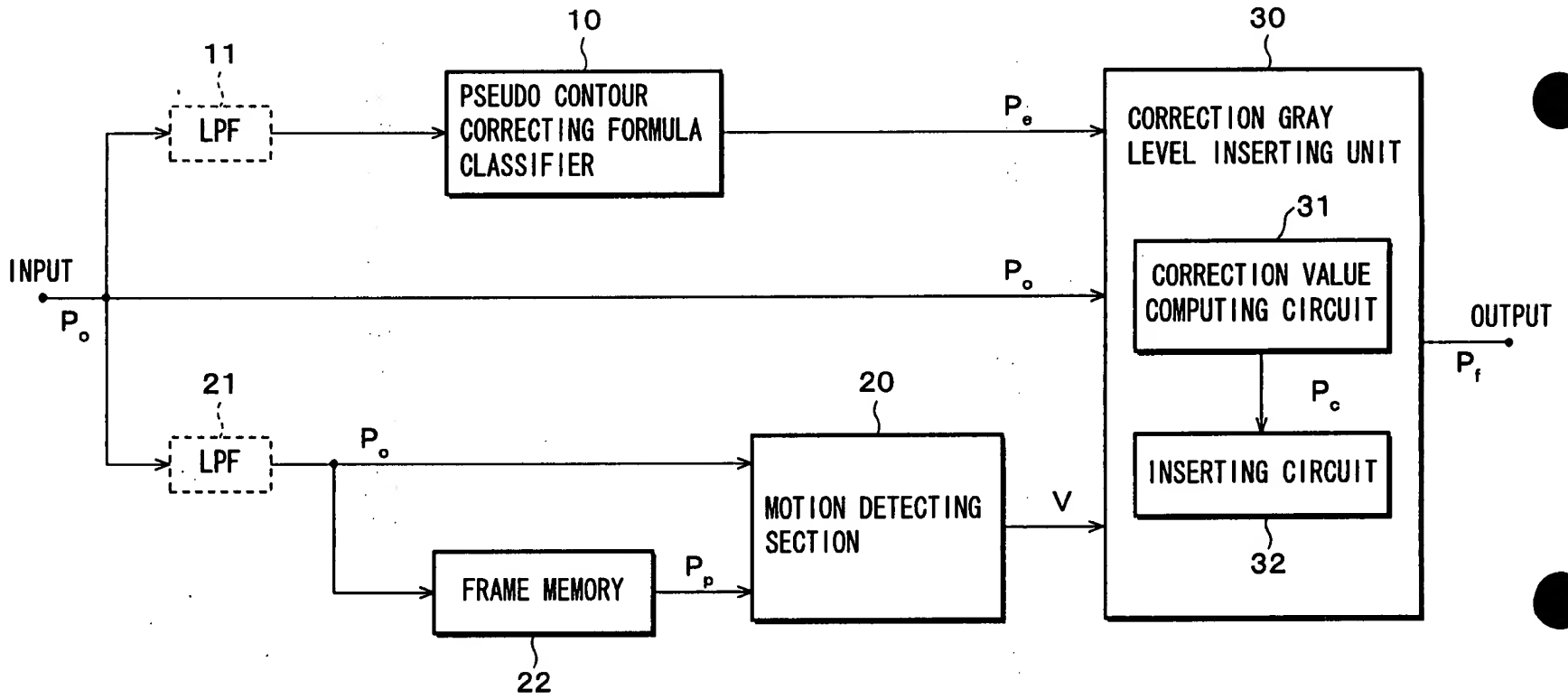

10
11
30
LPF
PSEUDO CONTOUR CORRECTING FORMULA CLASSIFIER
$P_e$
CORRECTION GRAY LEVEL INSERTING UNIT
31
INPUT
$P_o$
$P_o$
CORRECTION VALUE COMPUTING CIRCUIT
OUTPUT
$P_f$
21
20
$P_o$
$P_c$
LPF
MOTION DETECTING SECTION
V
INSERTING CIRCUIT
FRAME MEMORY
$P_p$
32
22

FIG. 36

| NUMERAL Gr. | CORRECTING FORMULA Gr. |
|---|---|
| 0 | N |
| 1 | E (1) |
| 2 | C (Jh) |
| 3 | D (Jh) |
| 4 | F (Jh) |
| 5 | F (Jh) * |
| 6 | F (Jh) ** |
| 7 | f (Jh) |
| 8 | f (Jh) * |
| 9 | f (Jh) ** |

N represents non-correction.
Numeral in () represents a referential numeral of a redundancy signal pattern used.
Jh is 2 or 3.

FIG. 37

| NUMERAL Gr. | CORRECTING FORMULA Gr. |
|---|---|
| 0 | N |
| 1 | C 1 |
| 2 | D 1 |
| 3 | $E_{Jh}$ |
| 4 | $F_{Jh}$ |

N represents non-correction.
Jh is 2 or 3.

FIG. 38

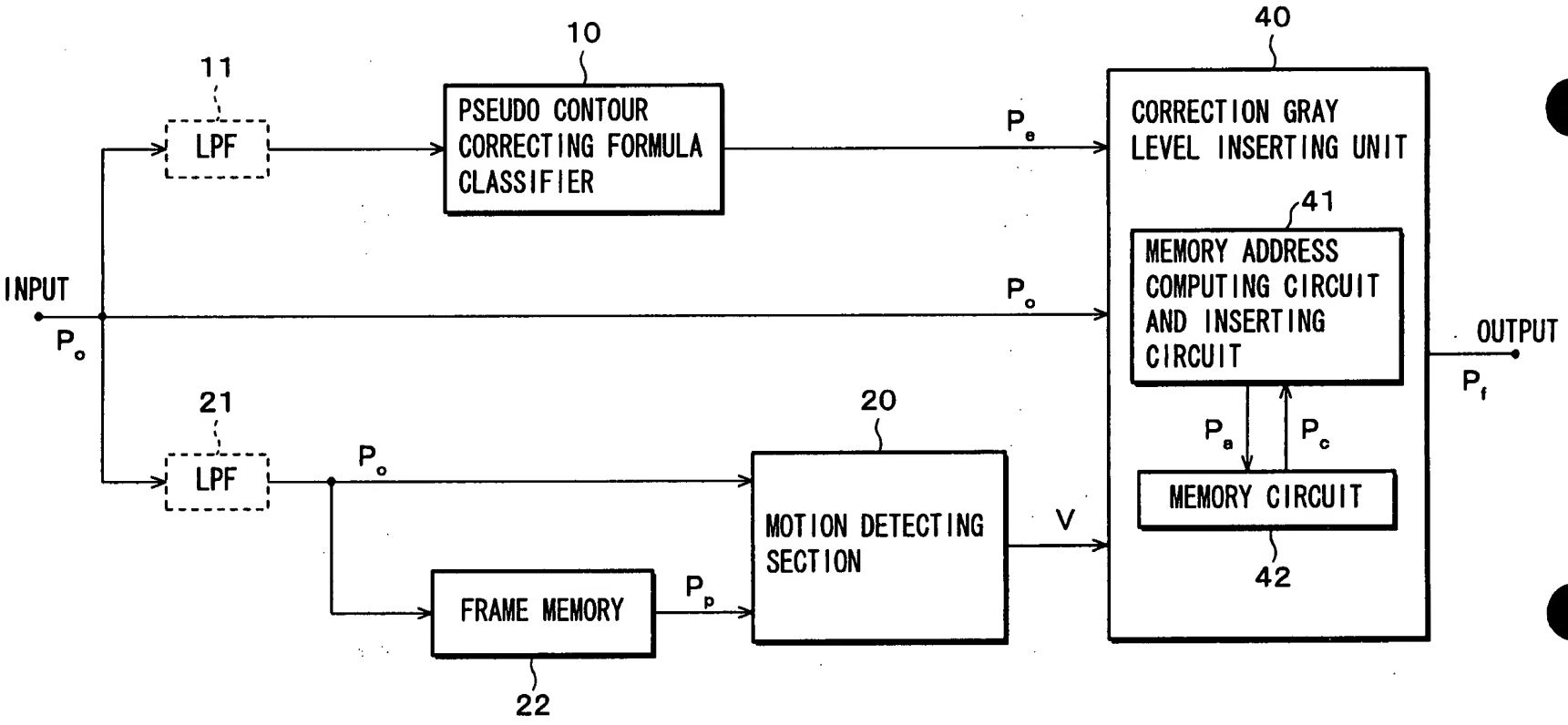

10
11
40
PSEUDO CONTOUR CORRECTING FORMULA CLASSIFIER
LPF
$P_e$
CORRECTION GRAY LEVEL INSERTING UNIT
41
INPUT
$P_o$
$P_o$
MEMORY ADDRESS COMPUTING CIRCUIT AND INSERTING CIRCUIT
OUTPUT
$P_f$
21
20
LPF
$P_o$
$P_a$
$P_c$
MOTION DETECTING SECTION
V
MEMORY CIRCUIT
FRAME MEMORY
$P_p$
42
22

FIG. 39

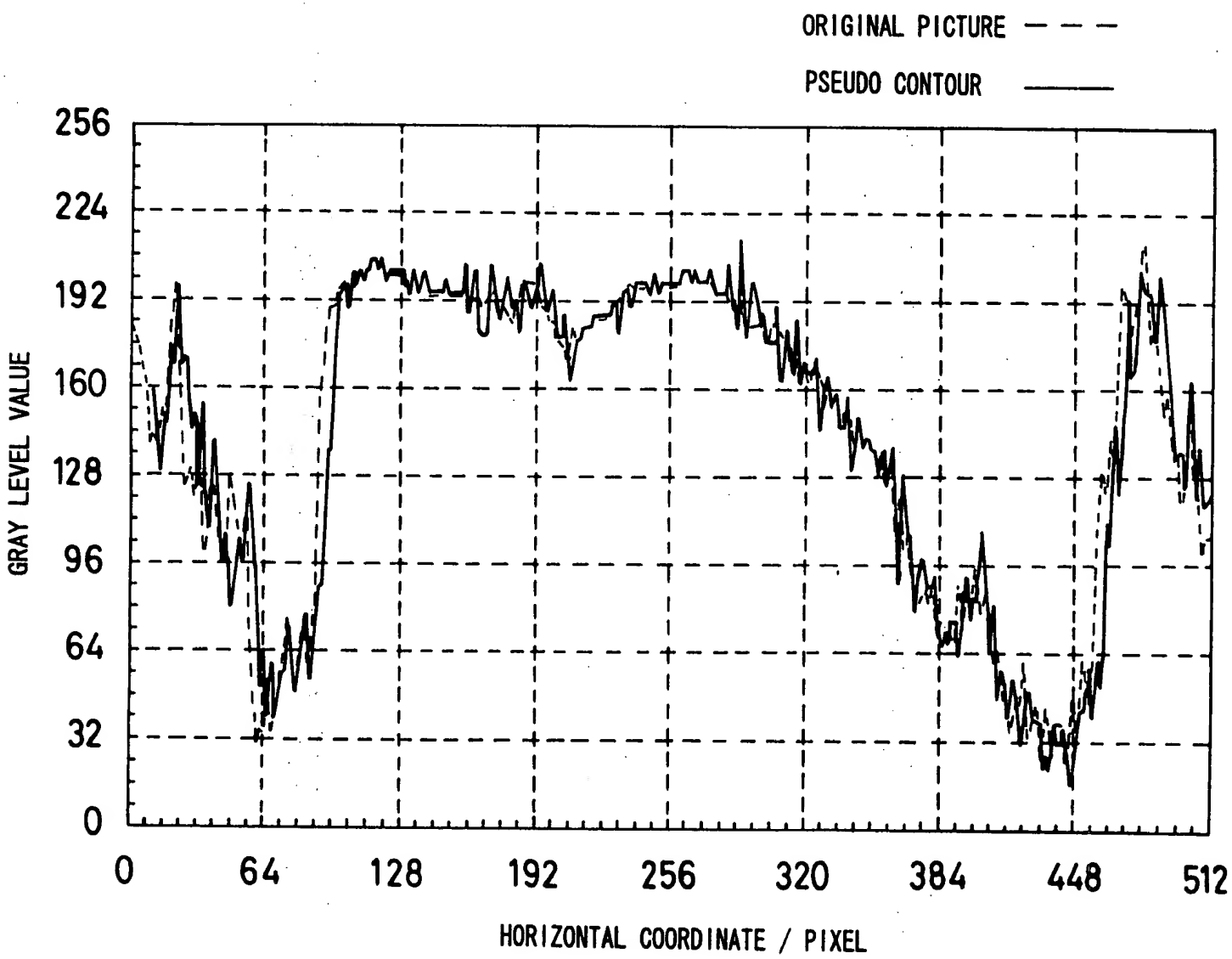

ORIGINAL PICTURE
PSEUDO CONTOUR
GRAY LEVEL VALUE
256
224
192
160
128
96
64
32
0
0
64
128
192
256
320
384
448
512
HORIZONTAL COORDINATE / PIXEL

FIG.40

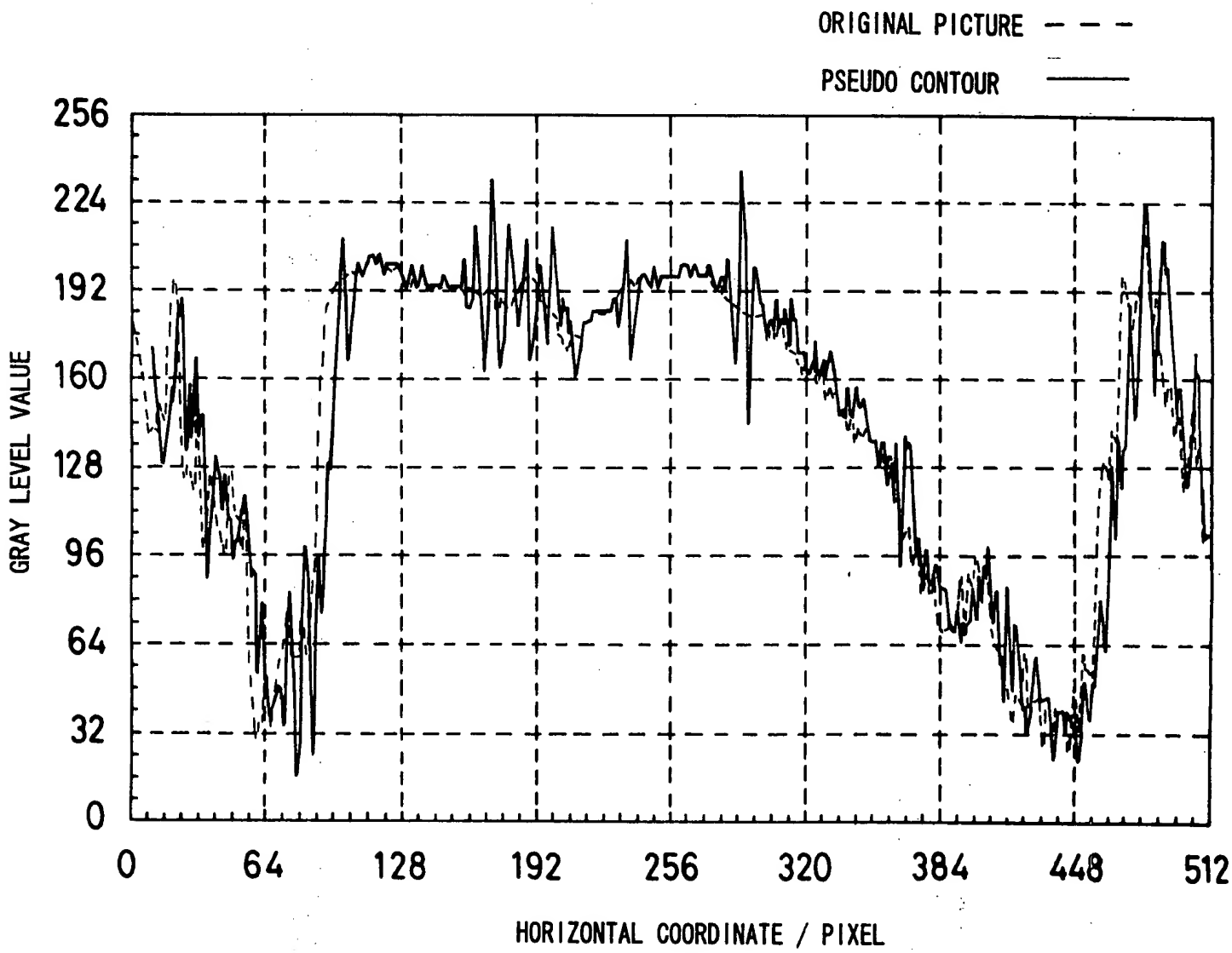

ORIGINAL PICTURE
PSEUDO CONTOUR
GRAY LEVEL VALUE
256
224
192
160
128
96
64
32
0
0
64
128
192
256
320
384
448
512
HORIZONTAL COORDINATE / PIXEL

FIG. 41

COMPUTATION RESULT OF CORRECTED RAMP-WAVEFORM MOTION PICTURE (TIME DIVISION 1:8:4:8)

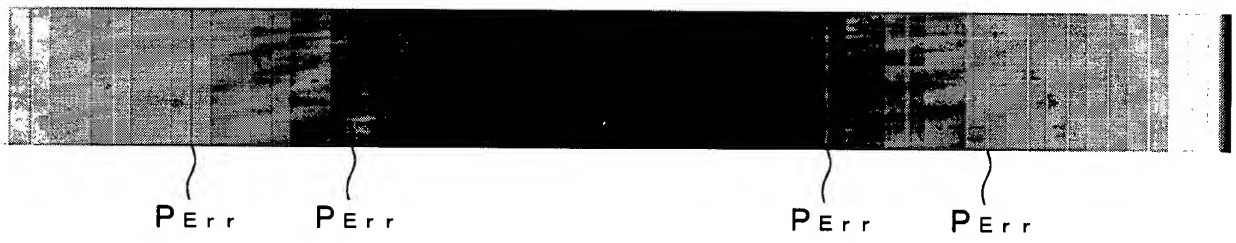


FIG. 42

COMPUTATION RESULT OF NON-CORRECTED RAMP-WAVEFORM MOTION PICTURE (TIME DIVISION 1:8:4:8)

FIG. 43

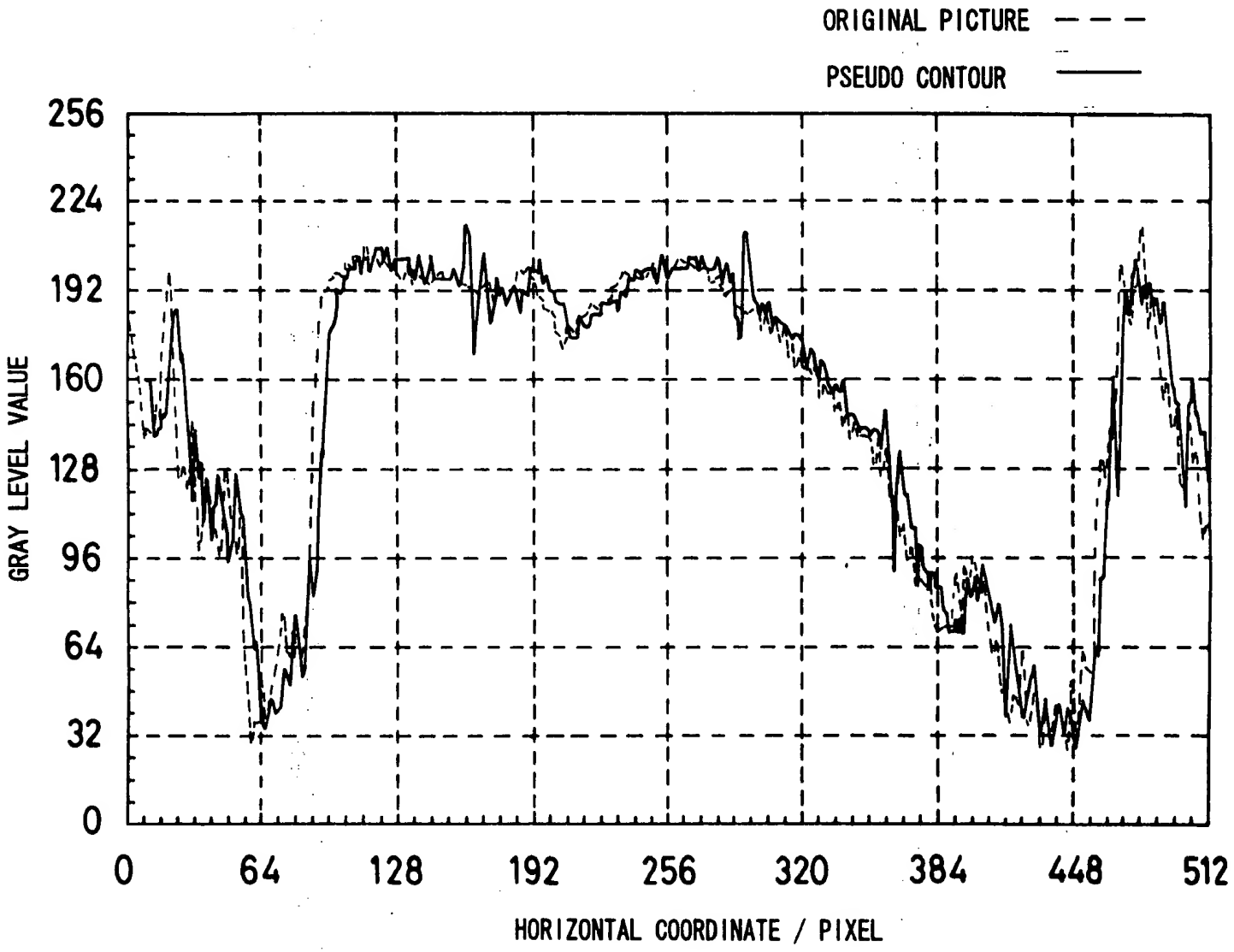

ORIGINAL PICTURE
PSEUDO CONTOUR
GRAY LEVEL VALUE
256
224
192
160
128
96
64
32
0
0
64
128
192
256
320
384
448
512
HORIZONTAL COORDINATE / PIXEL

FIG. 44

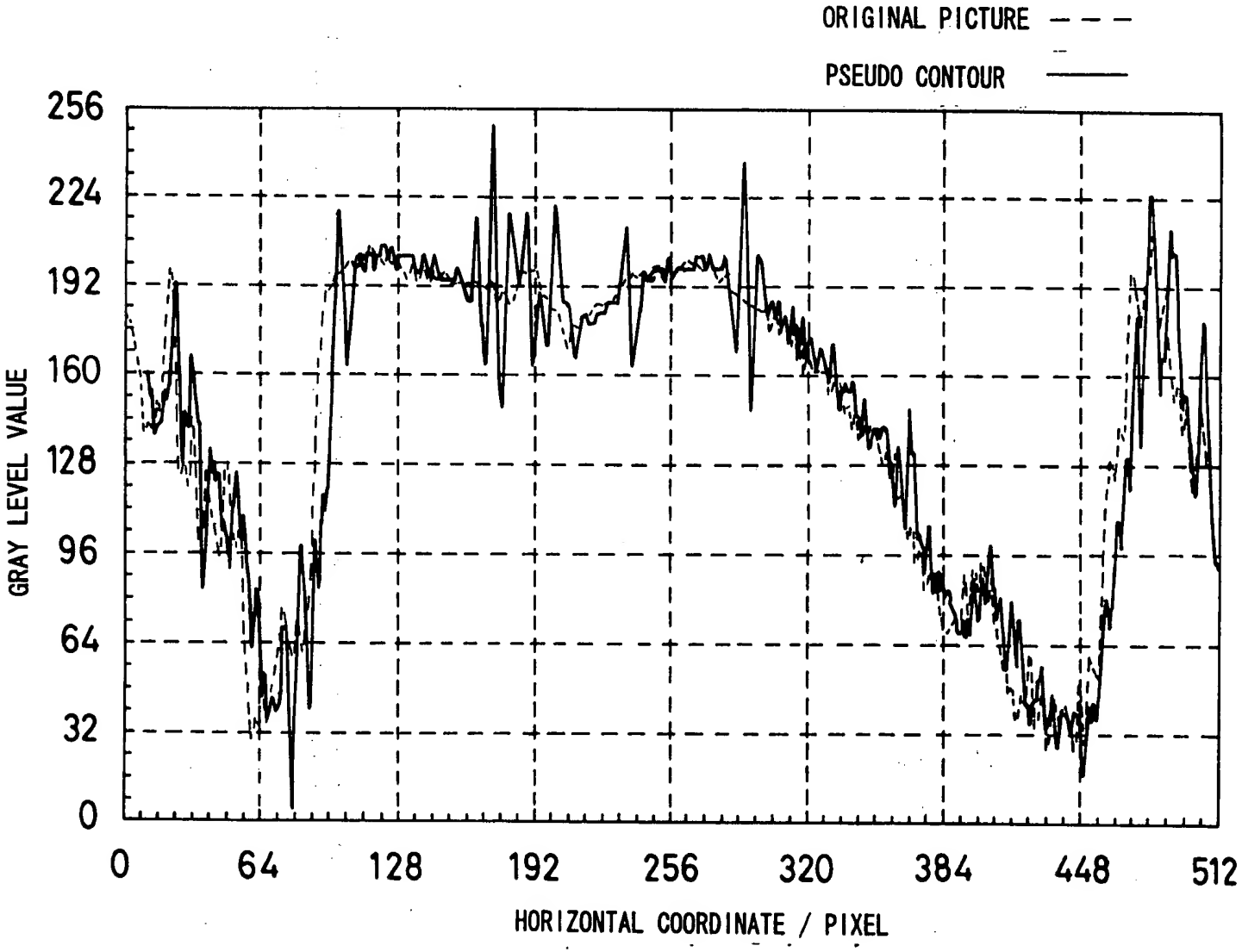

ORIGINAL PICTURE
PSEUDO CONTOUR
GRAY LEVEL VALUE
256
224
192
160
128
96
64
32
0
0
64
128
192
256
320
384
448
512
HORIZONTAL COORDINATE / PIXEL

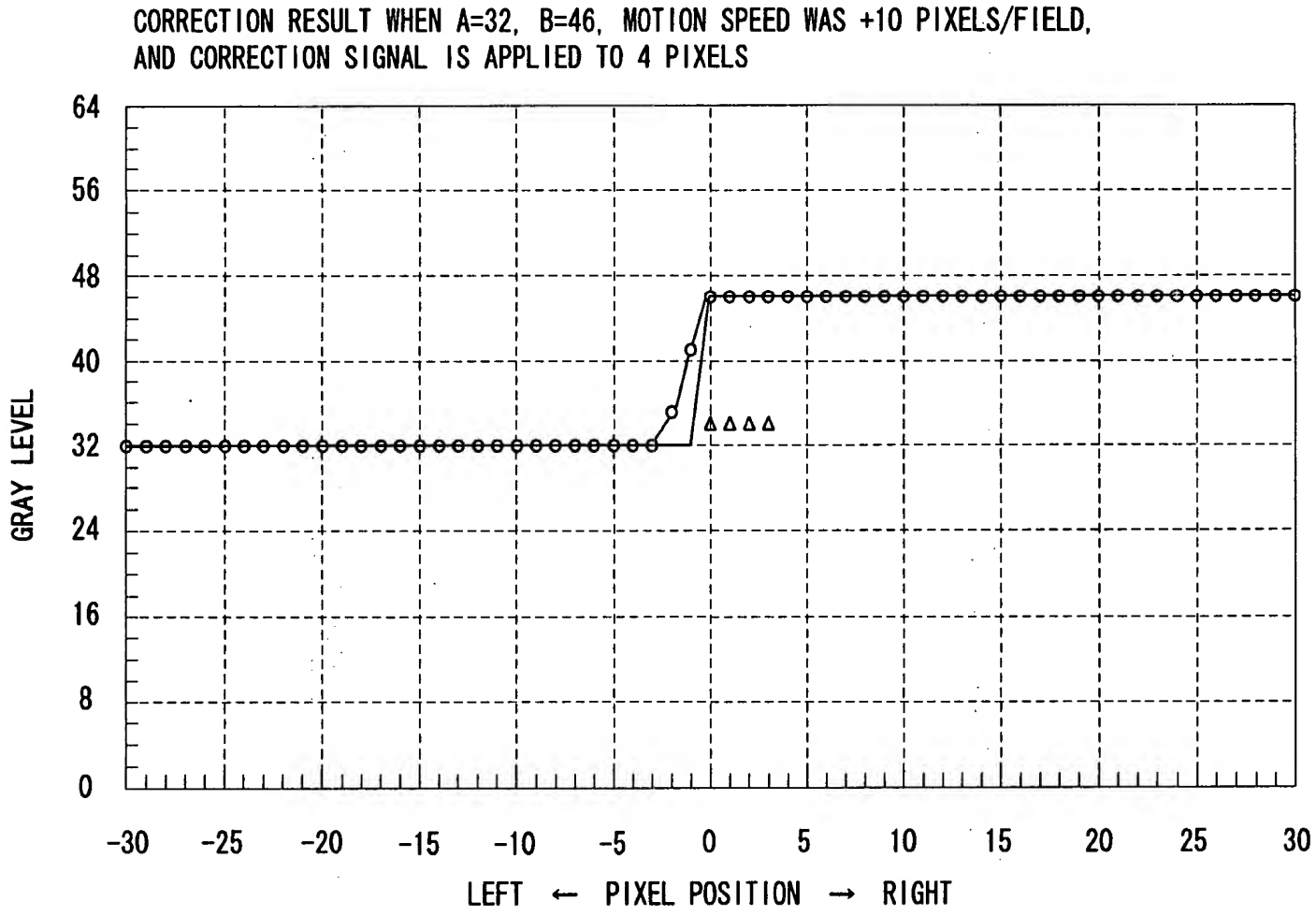
FIG. 45

COMPUTATION RESULT OF CORRECTED RAMP-WAVEFORM MOTION PICTURE (TIME DIVISION 8:4:1:8)

FIG. 46

COMPUTATION RESULT OF NON-CORRECTED RAMP-WAVEFORM MOTION PICTURE (TIME DIVISION 8:4:1:8)

# FIG. 47


CORRECTION RESULT WHEN A=32, B=46, MOTION SPEED WAS +10 PIXELS/FIELD,
AND CORRECTION SIGNAL IS APPLIED TO 4 PIXELS
GRAY LEVEL
64
56
48
40
32
24
16
8
0
-30
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
LEFT ← PIXEL POSITION → RIGHT
SOLID LINE : GRAY LEVEL VALUE OF PICTURE
○ : GRAY LEVEL VALUE OF PICTURE WHEN MOVING
△ : CORRECTION GRAY LEVEL VALUE

# FIG. 48

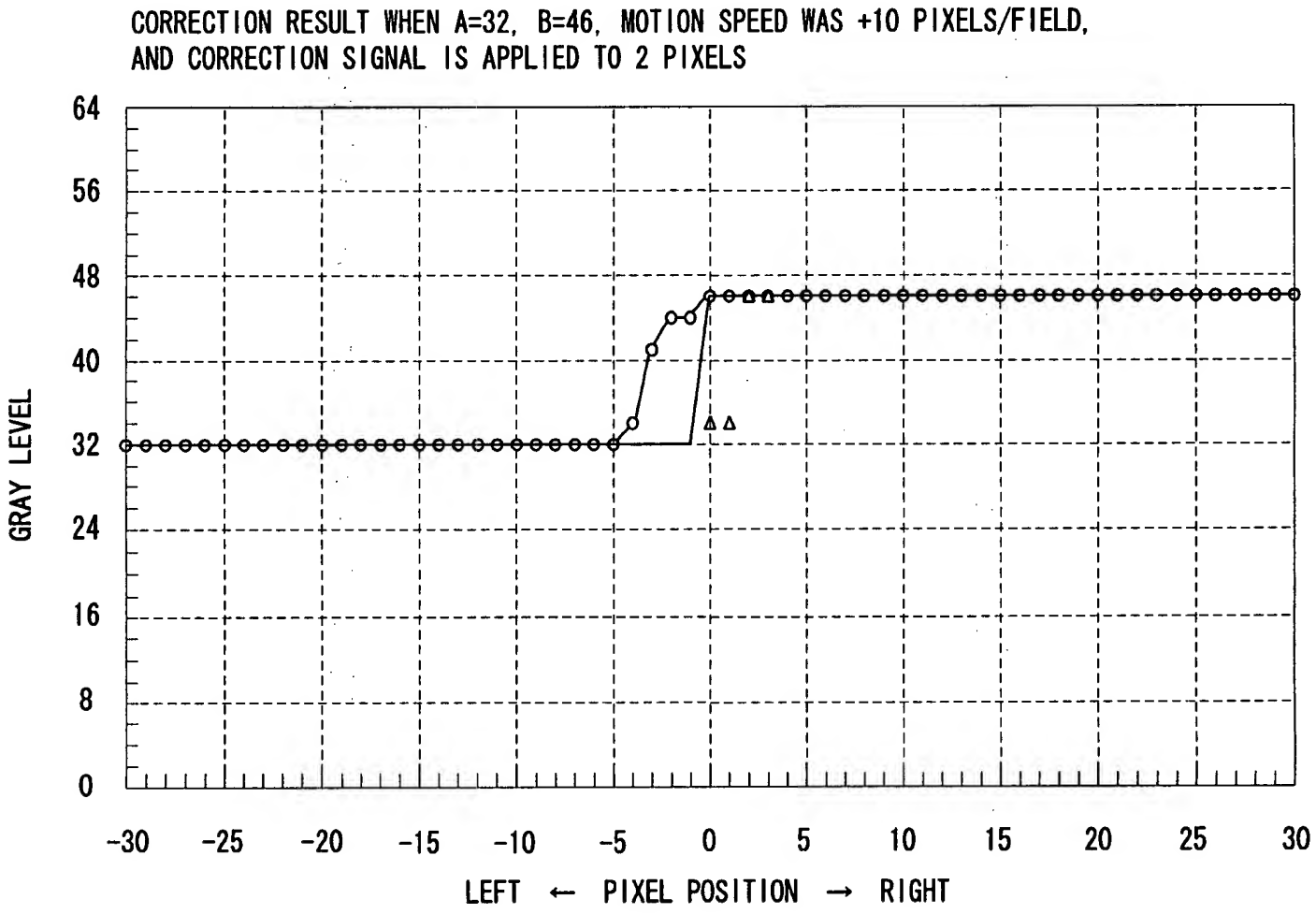

CORRECTION RESULT WHEN A=32, B=46, MOTION SPEED WAS +10 PIXELS/FIELD,
AND CORRECTION SIGNAL IS APPLIED TO 2 PIXELS
GRAY LEVEL
64
56
48
40
32
24
16
8
0
-30
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
LEFT ← PIXEL POSITION → RIGHT
SOLID LINE : GRAY LEVEL VALUE OF PICTURE
○ : GRAY LEVEL VALUE OF PICTURE WHEN MOVING
△ : CORRECTION GRAY LEVEL VALUE

FIG. 49

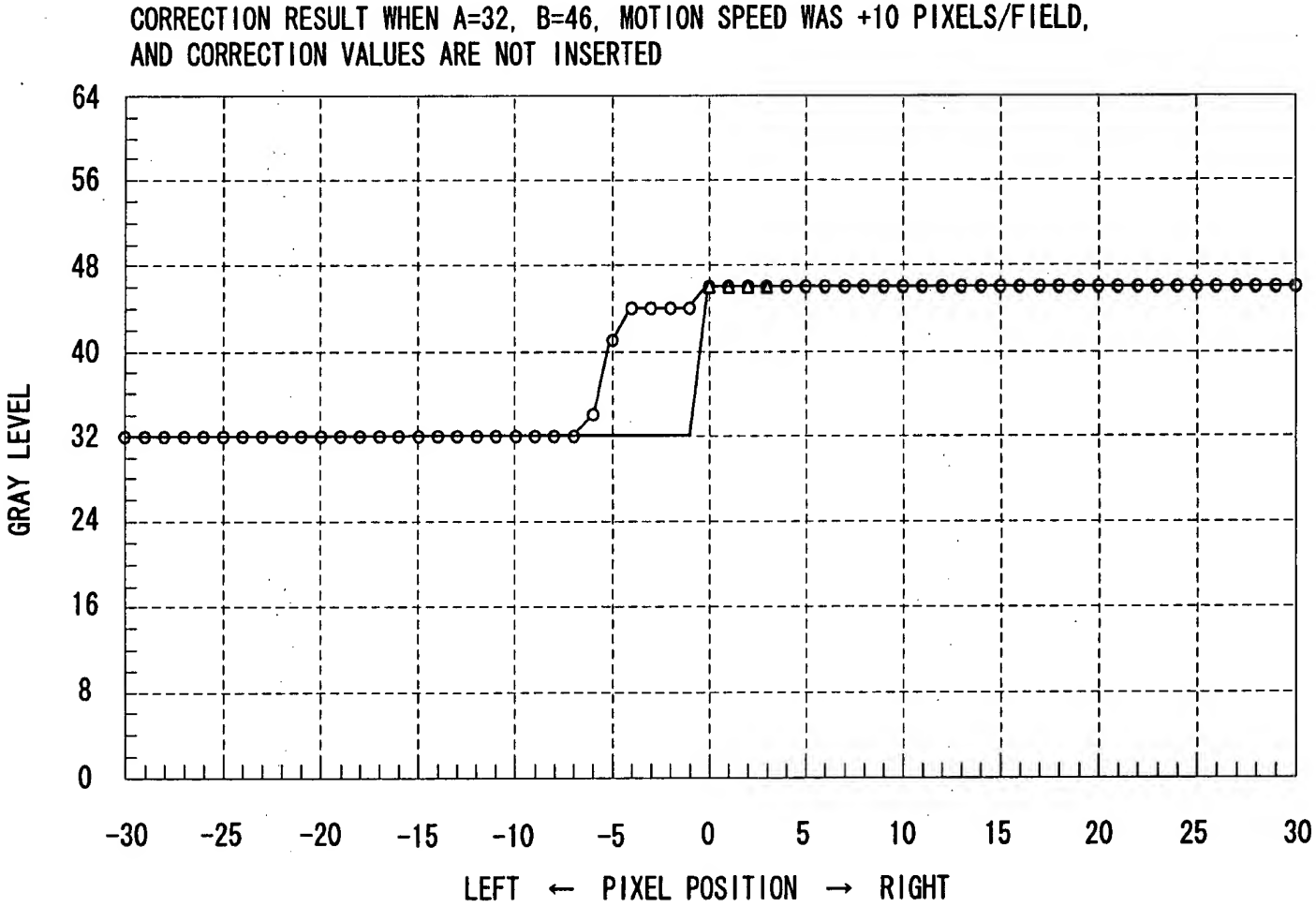

CORRECTION RESULT WHEN A=32, B=46, MOTION SPEED WAS +10 PIXELS/FIELD,
AND CORRECTION VALUES ARE NOT INSERTED
GRAY LEVEL
64
56
48
40
32
24
16
8
0
-30
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
LEFT ← PIXEL POSITION → RIGHT
SOLID LINE : GRAY LEVEL VALUE OF PICTURE
○ : GRAY LEVEL VALUE OF PICTURE WHEN MOVING
△ : CORRECTION GRAY LEVEL VALUE

FIG. 50

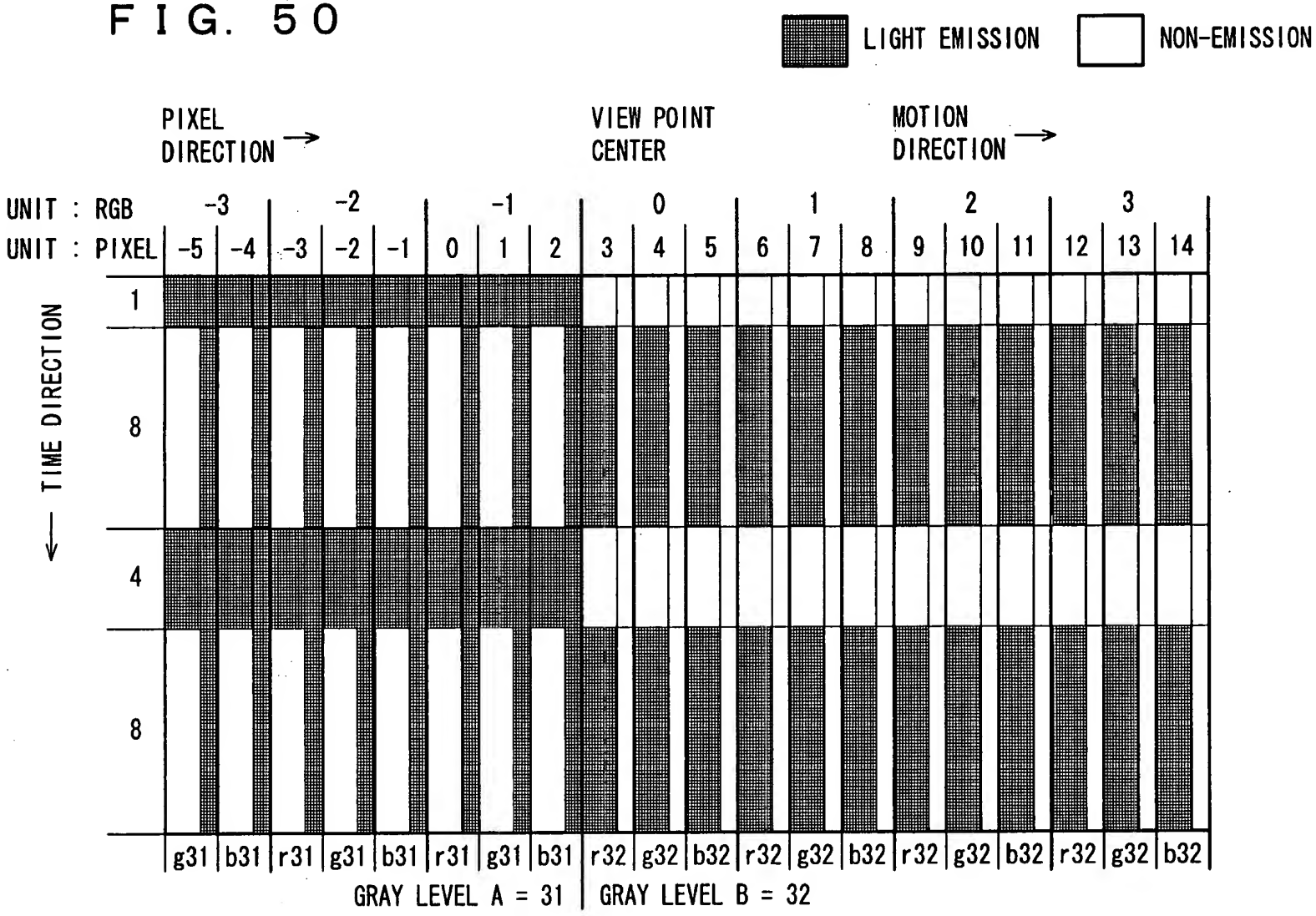

LIGHT EMISSION
NON-EMISSION
PIXEL DIRECTION
VIEW POINT CENTER
MOTION DIRECTION
UNIT : RGB
UNIT : PIXEL
TIME DIRECTION
1
8
4
8
GRAY LEVEL A = 31
GRAY LEVEL B = 32

FIG. 51

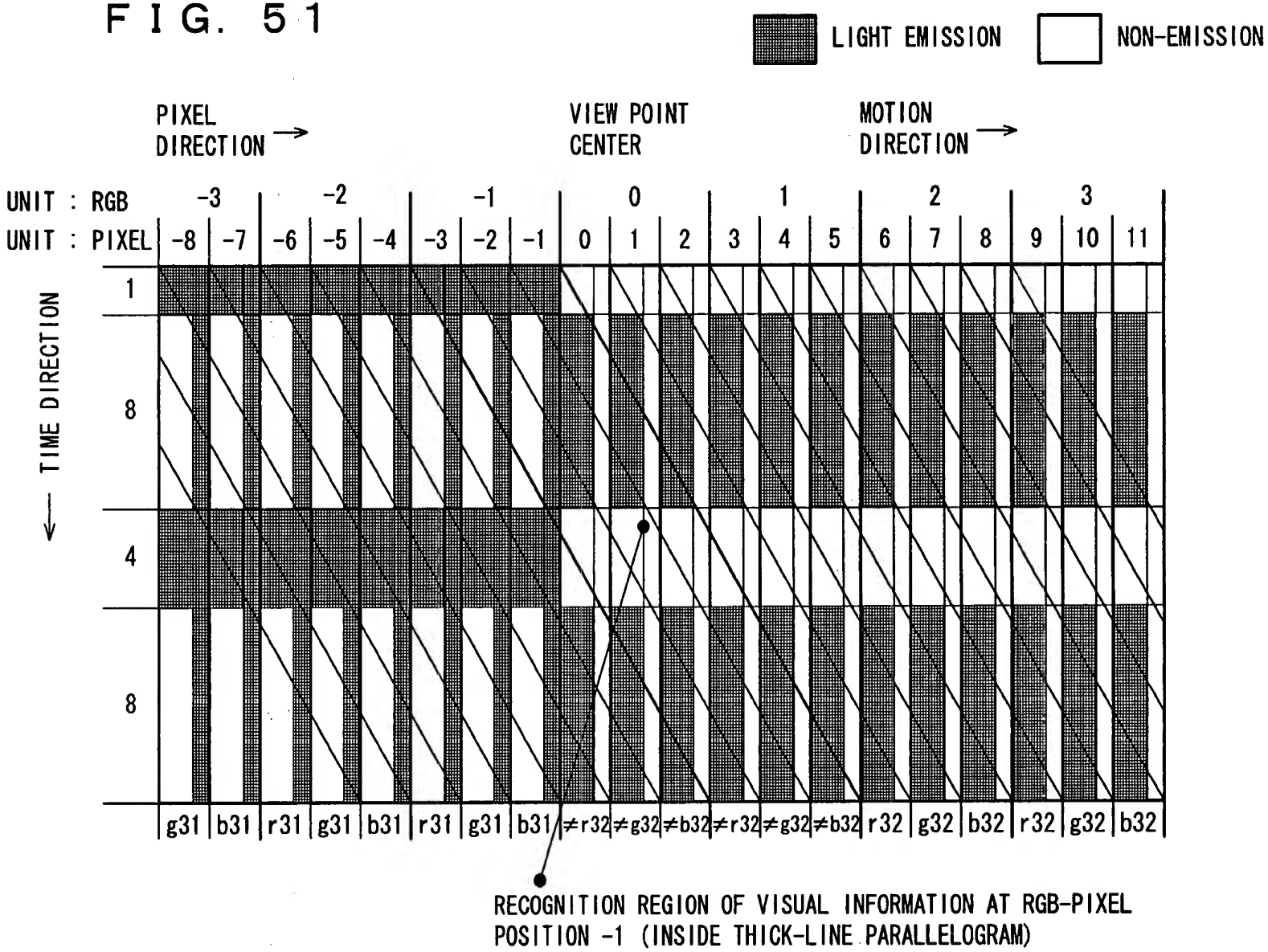

LIGHT EMISSION
NON-EMISSION
PIXEL DIRECTION
VIEW POINT CENTER
MOTION DIRECTION
UNIT : RGB
UNIT : PIXEL
TIME DIRECTION
1
8
4
8
g31 b31 r31 g31 b31 r31 g31 b31 ≠r32 ≠g32 ≠b32 ≠r32 ≠g32 ≠b32 r32 g32 b32 r32 g32 b32
RECOGNITION REGION OF VISUAL INFORMATION AT RGB-PIXEL POSITION -1 (INSIDE THICK-LINE PARALLELOGRAM)

FIG. 52

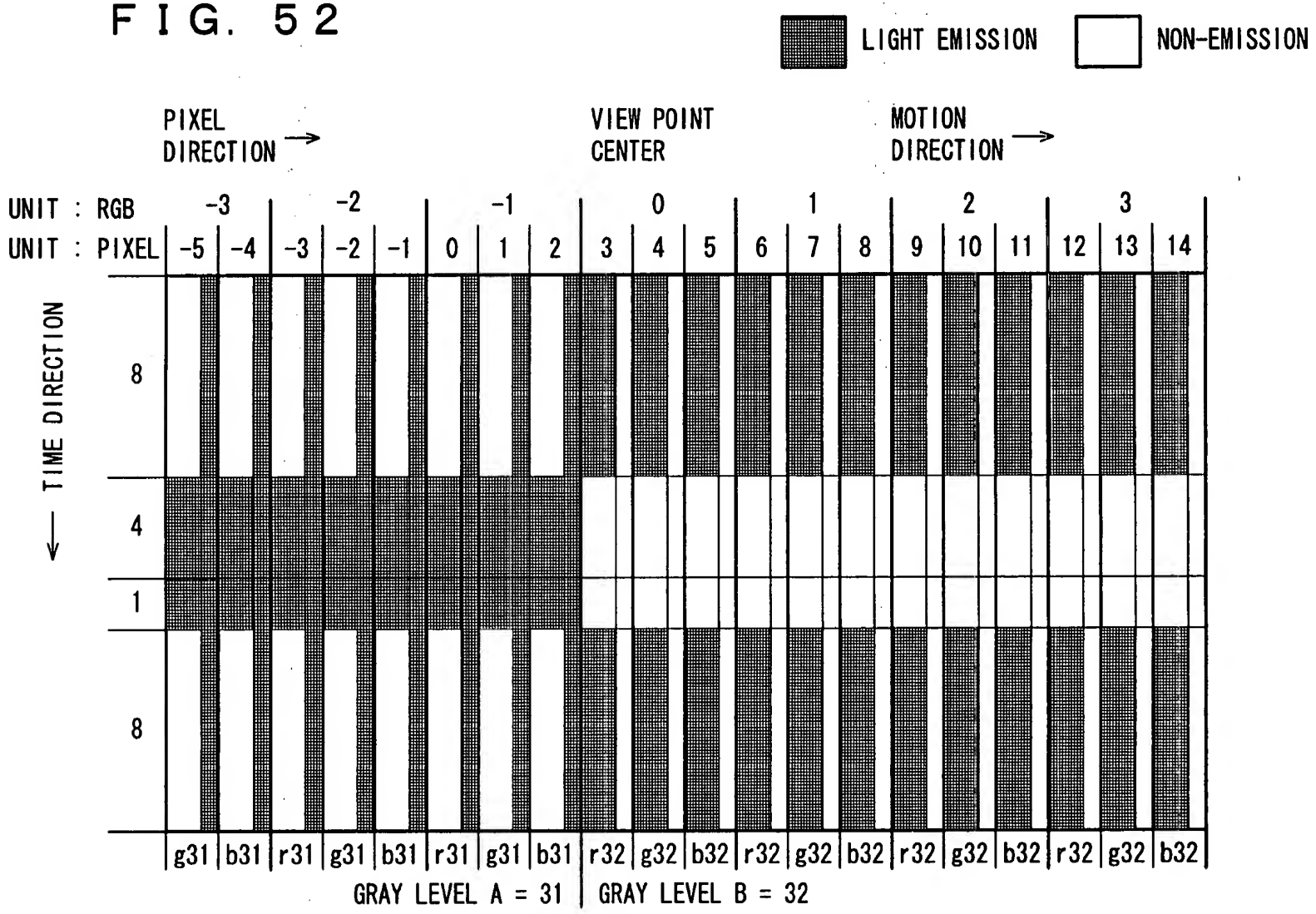

LIGHT EMISSION
NON-EMISSION
PIXEL DIRECTION
VIEW POINT CENTER
MOTION DIRECTION
UNIT : RGB
UNIT : PIXEL
TIME DIRECTION
8
4
1
8
g31 b31 r31 g31 b31 r31 g31 b31 r32 g32 b32 r32 g32 b32 r32 g32 b32 r32 g32 b32
GRAY LEVEL A = 31
GRAY LEVEL B = 32

FIG. 53

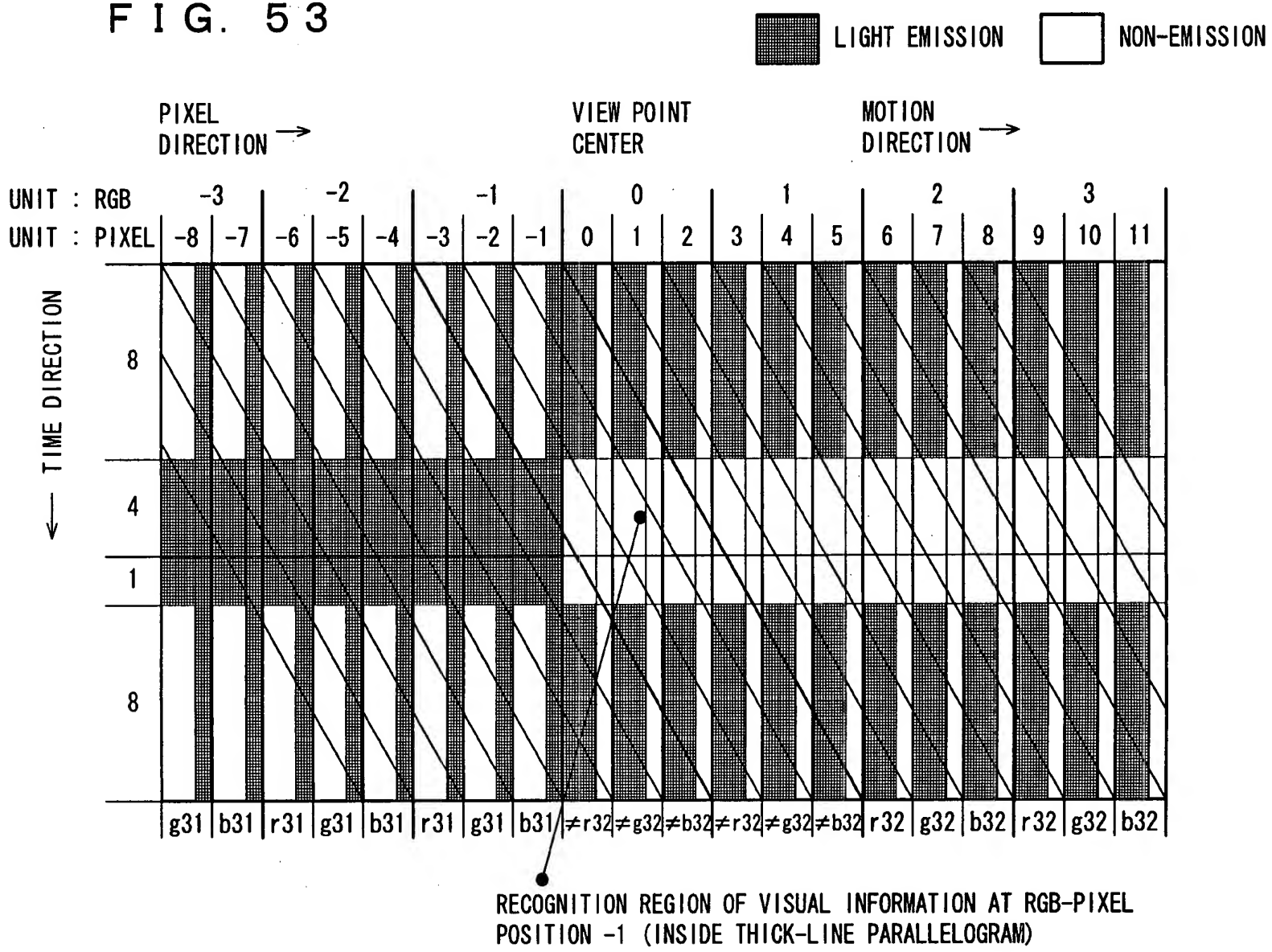

LIGHT EMISSION
NON-EMISSION
PIXEL DIRECTION
VIEW POINT CENTER
MOTION DIRECTION
UNIT : RGB
UNIT : PIXEL
TIME DIRECTION
RECOGNITION REGION OF VISUAL INFORMATION AT RGB-PIXEL POSITION -1 (INSIDE THICK-LINE PARALLELOGRAM)

FIG. 54(a)

x DIRECTION →

| y DIRECTION ↓ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |
| 2 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |
| 3 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |
| 4 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |
| 5 | G | G | G | G | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 71 | 79 | 87 | 95 | G | G | G | G | G | G | G |
| 6 | G | G | G | G | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 55 | 70 | 78 | 86 | 94 | G | G | G | G | G | G | G |
| 7 | G | G | G | G | 35 | 34 | 33 | 32 | 31 | 30 | 43 | 54 | 69 | 77 | 85 | 93 | G | G | G | G | G | G | G |
| 8 | G | G | G | G | 16 | 17 | 18 | 19 | 20 | 29 | 44 | 53 | 68 | 76 | 84 | 92 | G | G | G | G | G | G | G |
| 9 | G | G | G | G | 15 | 14 | 13 | 12 | 21 | 28 | 45 | 52 | 67 | 75 | 83 | 91 | G | G | G | G | G | G | G |
| 10 | G | G | G | G | 4 | 5 | 6 | 11 | 22 | 27 | 46 | 51 | 66 | 74 | 82 | 90 | G | G | G | G | G | G | G |
| 11 | G | G | G | G | 3 | 2 | 7 | 10 | 23 | 26 | 47 | 50 | 65 | 73 | 81 | 89 | G | G | G | G | G | G | G |
| 12 | G | G | G | G | 0 | 1 | 8 | 9 | 24 | 25 | 48 | 49 | 64 | 72 | 80 | 88 | G | G | G | G | G | G | G |
| 13 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |
| 14 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |
| 15 | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |

FIG.54(b)

x DIRECTION →

| y DIRECTION ↓ | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | | | | | | | | | | 87 | 95 |
| 6 | | | | | | | | | | 78 | 86 | |
| 7 | | | | | | | | 54 | 69 | 77 | | |
| 8 | | | | | | | 44 | 53 | | | | |
| 9 | | | | | 21 | 28 | | | | | | |
| 10 | | | 6 | 11 | 22 | | | | | | | |
| 11 | | 2 | 7 | | | | | | | | | |
| 12 | 0 | 1 | | | | | | | | | | |

FIG. 55 (a)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOCAL COORDINATE | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| x COORDINATE | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| EXTRACTED PIXEL | 0 | 2 | 7 | 11 | 21 | 28 | 44 | 53 | 69 | 78 | 86 | 95 |
| y COORDINATE | 12 | 11 | 11 | 10 | 9 | 9 | 8 | 8 | 7 | 6 | 6 | 5 |

HORIZONTAL CONTRIBUTION COMPONENT

FIG. 55 (b)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LOCAL COORDINATE | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| x COORDINATE | 5 | 6 | 7 | 9 | 11 | 12 | 14 | 15 |
| EXTRACTED PIXEL | 0 | 2 | 6 | 21 | 44 | 54 | 78 | 87 |
| y COORDINATE | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 |

VERTICAL CONTRIBUTION COMPONENT

FIG. 56 (a)

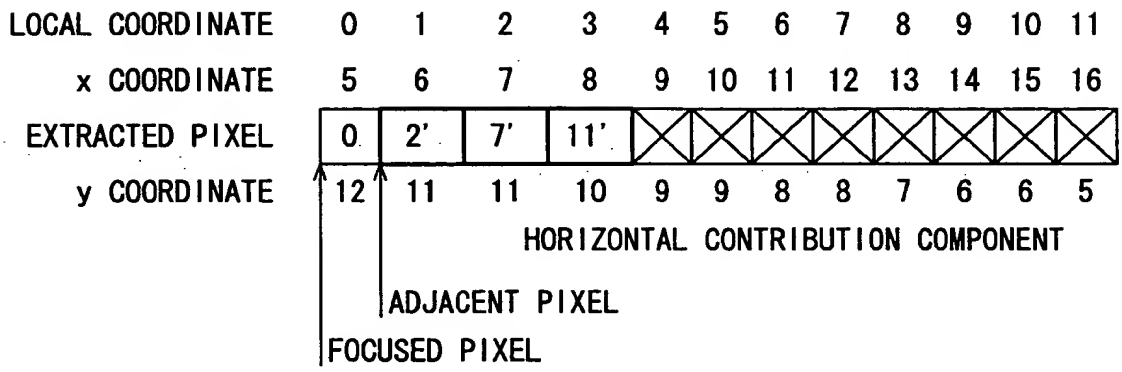



FIG. 56 (b)

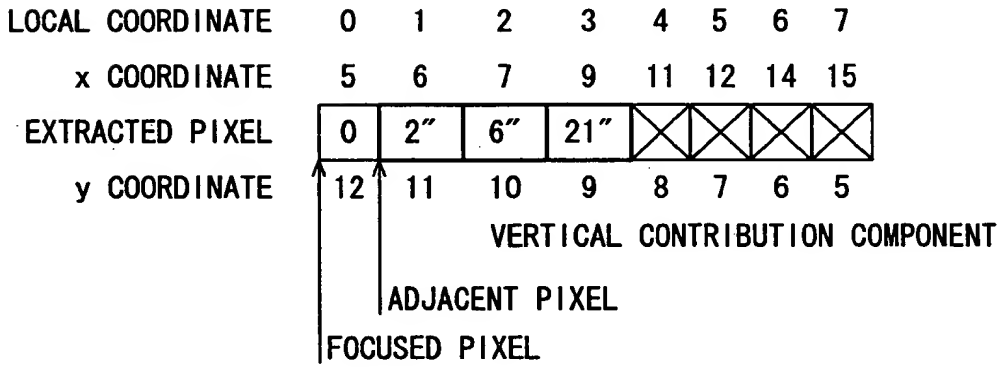
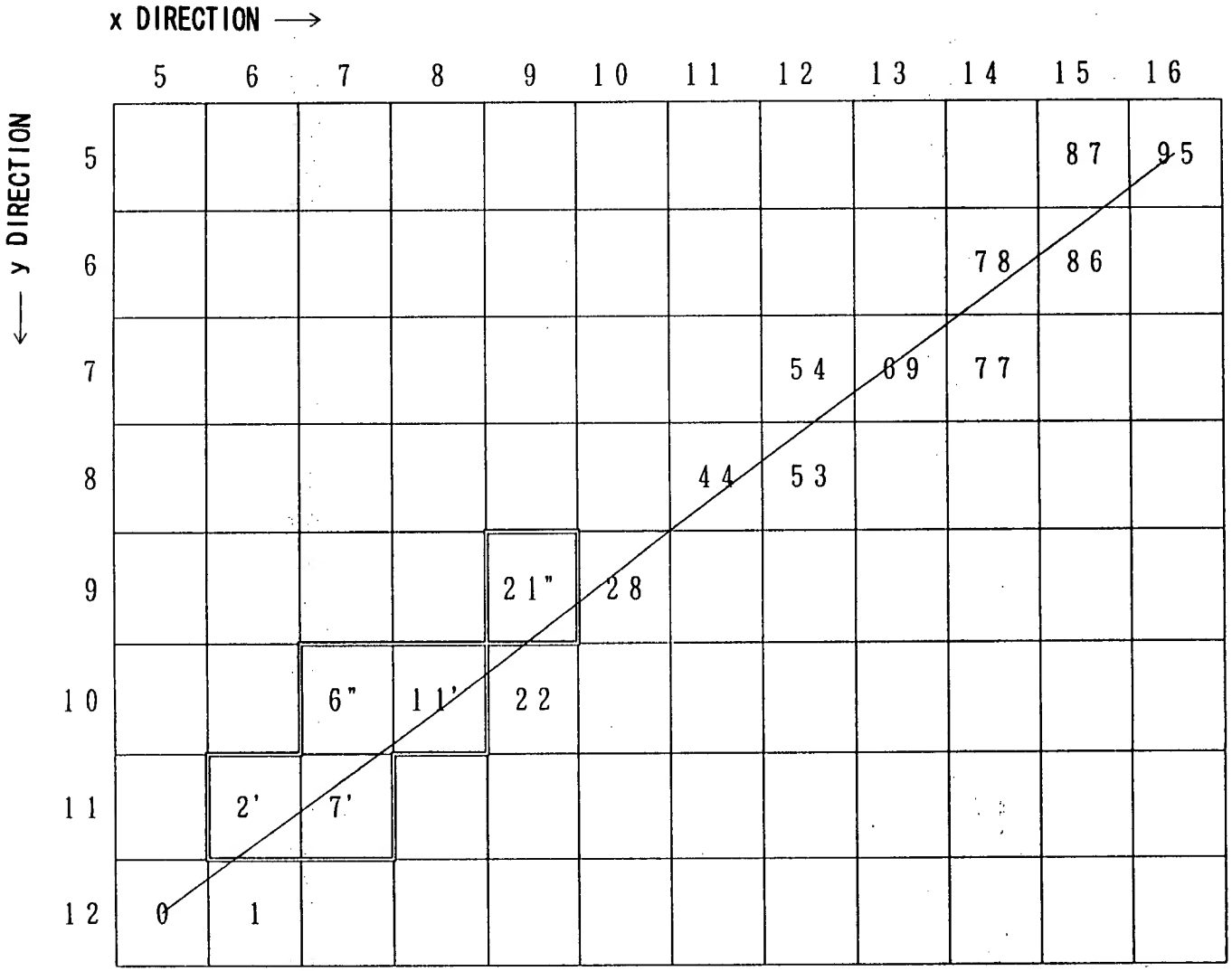


FIG. 57


x DIRECTION →
y DIRECTION ↓
5 6 7 8 9 10 11 12 13 14 15 16
5
6
7
8
9
10
11
12
87
95
78
86
54
69
77
44
53
21"
28
6"
11'
22
2'
7'
0
1

# FIG. 58

TEST PICTURE:STATIC STATE

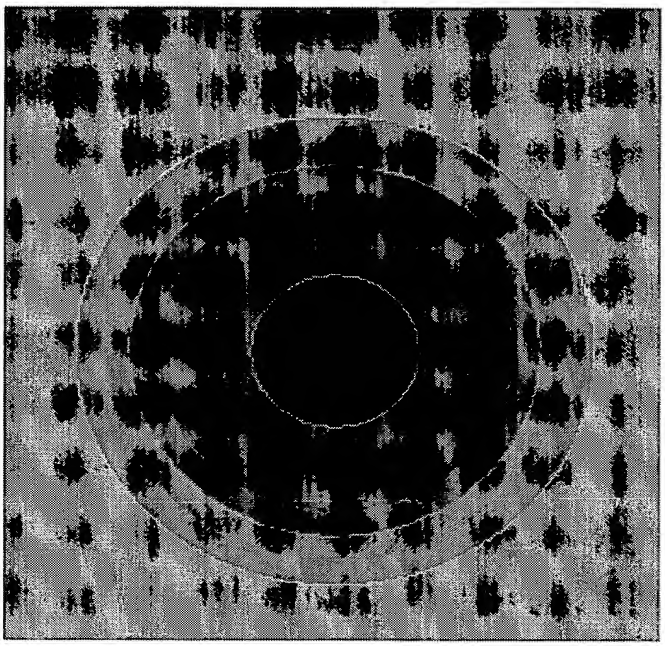


FIG. 59

TEST PICTURE:NON-CORRECTED RESULT

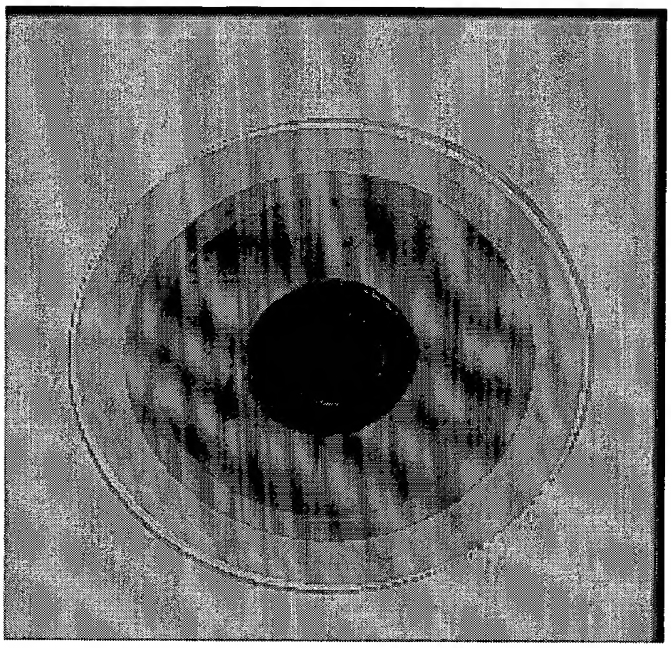


FIG. 60

TEST PICTURE:CORRECTED RESULT

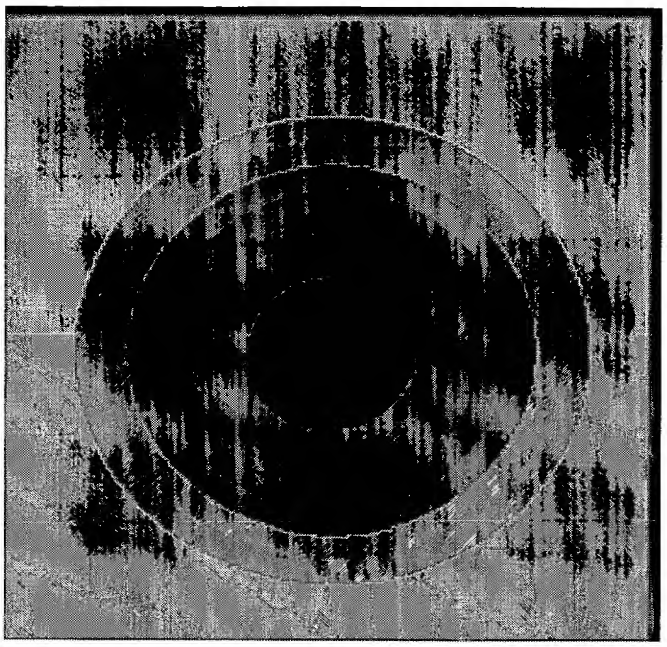


FIG. 61

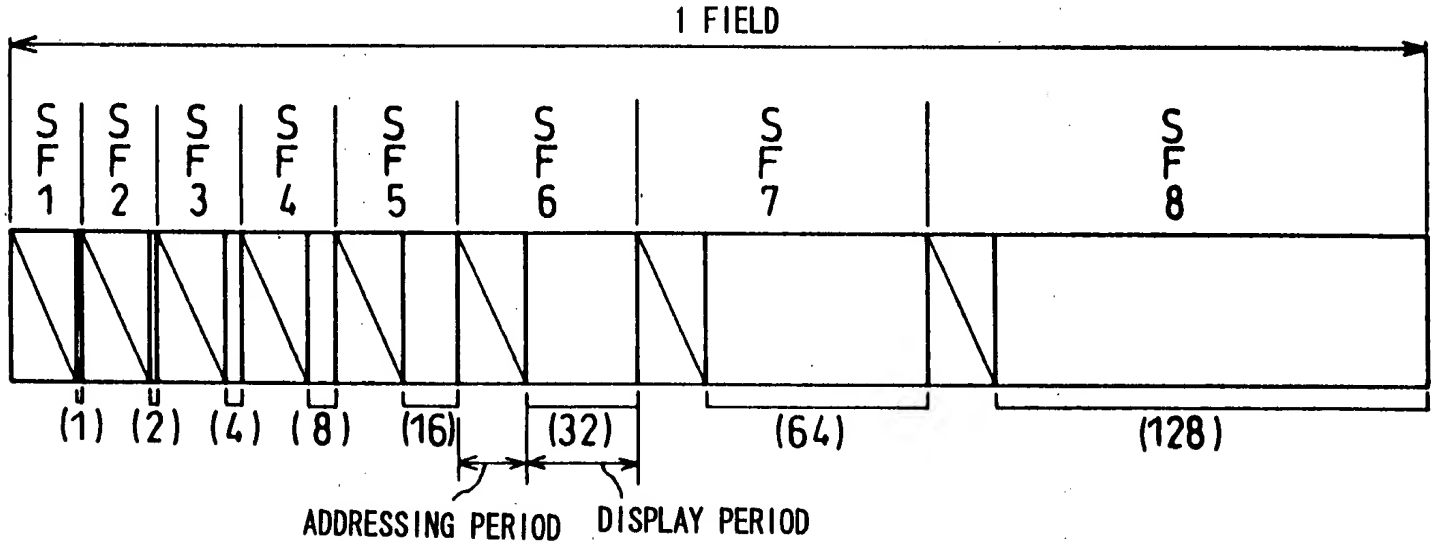

1 FIELD
SF1
SF2
SF3
SF4
SF5
SF6
SF7
SF8
(1)
(2)
(4)
(8)
(16)
(32)
(64)
(128)
ADDRESSING PERIOD
DISPLAY PERIOD

FIG. 62

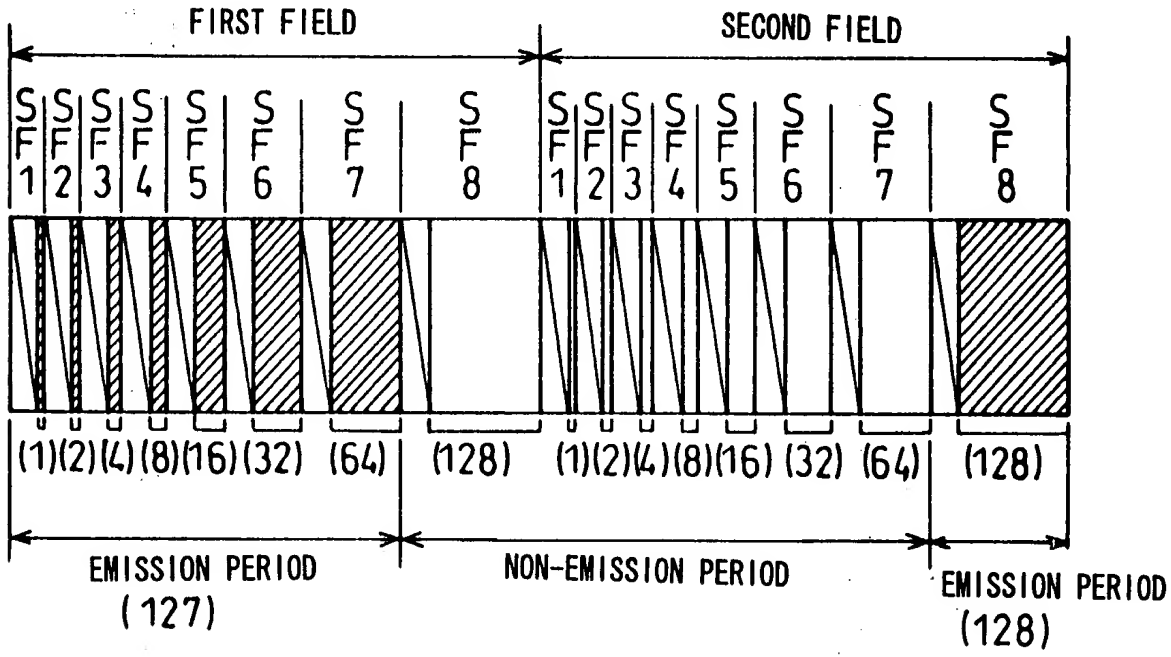

FIRST FIELD
SECOND FIELD
SF1
SF2
SF3
SF4
SF5
SF6
SF7
SF8
(1)(2)(4)(8)(16)(32)(64)(128)
(1)(2)(4)(8)(16)(32)(64)(128)
EMISSION PERIOD
(127)
NON-EMISSION PERIOD
EMISSION PERIOD
(128)

FIG. 63

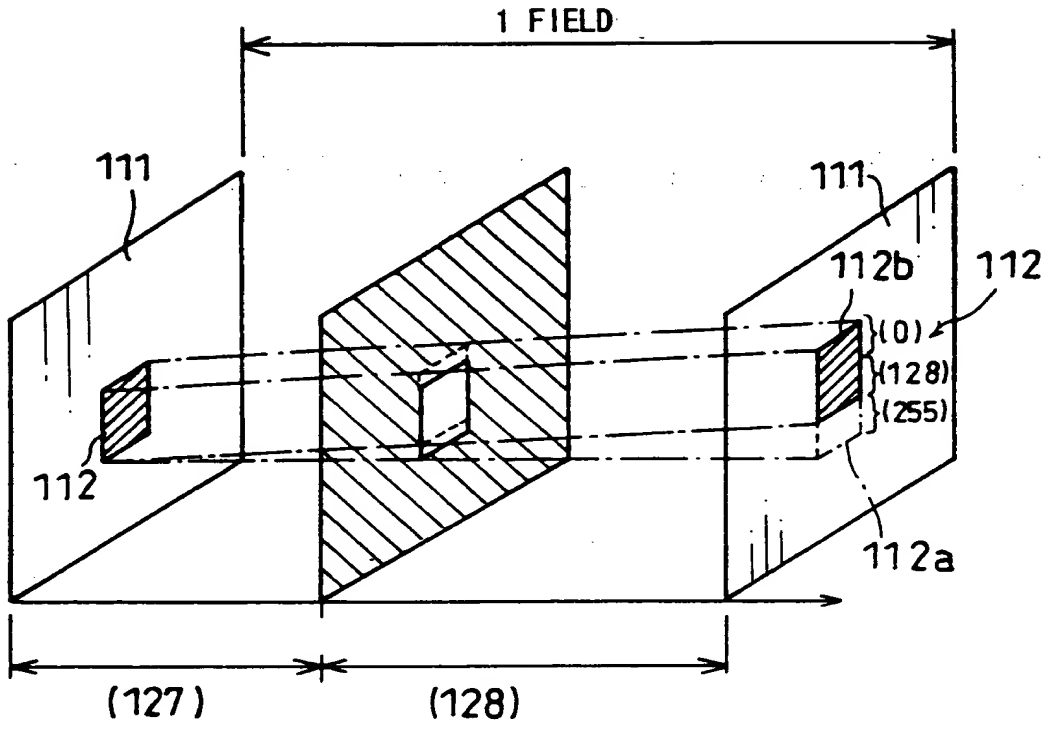


FIG. 64(a)

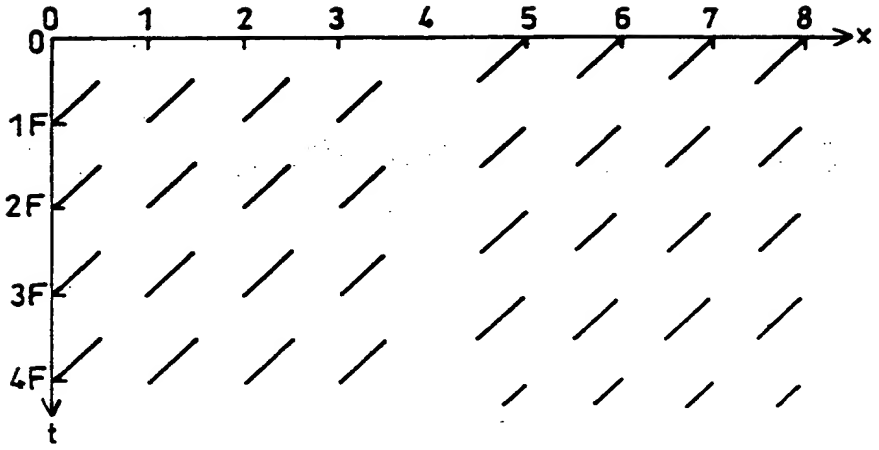



FIG. 64(b)

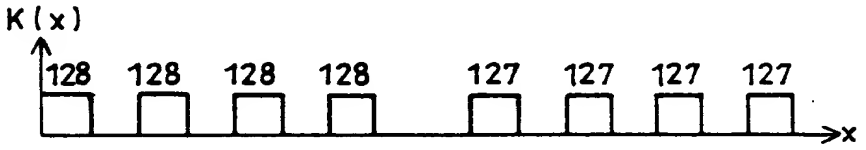



FIG. 64(c)

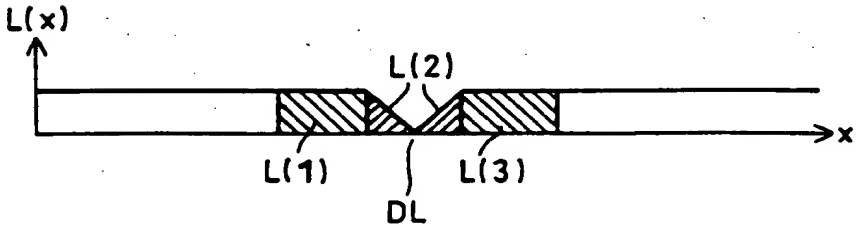


FIG. 65(a)

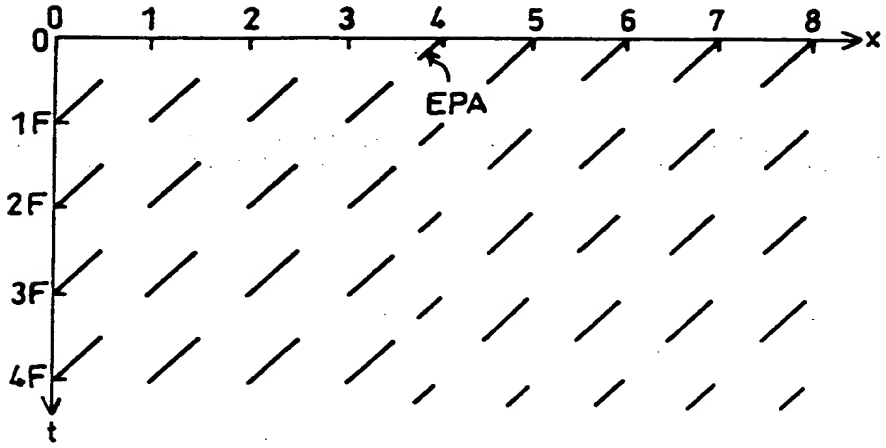



FIG. 65(b)

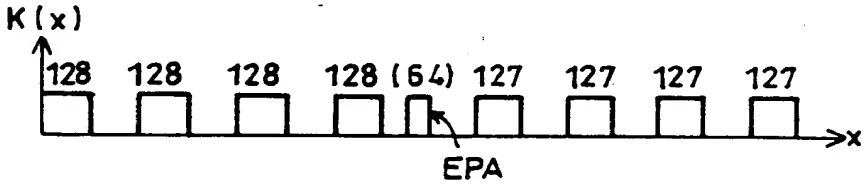



FIG. 65(c)

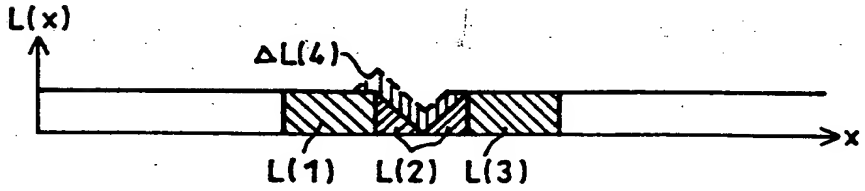


FIG. 66

| NUMBER OF SUB-FIELD | SUB-FIELD | | | | | |
|---|---|---|---|---|---|---|
| | SF9 | SF8 | SF7 | SF6 | SF5 | SF4～0 |
| 8 | – | – | 128 | 64 | 32 | 16, 8, 4, 2, 1 |
| 10 | 64 | 64 | 32 | 32 | 32 | 16, 8, 4, 2, 1 |
| 10 | 48 | 48 | 48 | 48 | 32 | 16, 8, 4, 2, 1 |